

NEW OR NOTEWORTHY INDO-CHINESE PLANTS

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With three text illustrations

SOME YEARS ago I published two papers on the Indo-Chinese flora,¹ the types of the various species therein described being deposited in the University of California herbarium. Although important additional Indo-Chinese collections were received while I was associated with that institution up to the end of 1929, little time was available to me to study this material. These collections included supplementary specimens from Dr. A. Petelot, and important collections made in the vicinity of Hue by R. W. Squires of Shanghai in 1927, and the more extensive collections made by Chaplain and Mrs. Joseph C. Clemens near Hue and Tourane, during the same year. In 1931 Mr. Squires made an important second collection in the vicinity of Dalat, southern Annam, the duplicates of which were distributed from the New York Botanical Garden. The preliminary identifications were made by me, as was the case with the first Squires collection and the Clemens material.

After my transfer to New York in January, 1930, Dr. Petelot continued to send material from time to time for identification. At intervals some of the specimens were more intensively studied, and a part of the general results are embodied in this paper, which is largely, but not entirely, based on his material. The actual types of the new species herein described are thus in part deposited in the Britton Herbarium, New York Botanical Garden, in part in the Herbarium of the Arnold Arboretum.

Attention is called to one rather important contribution that, because of its rather obscure place of publication, tends to be overlooked by botanists who are concerned with a study of the rich flora of Indo-China. This is the enumeration of the Boden Kloss² collection from southern Annam, published in 1921. In this paper 191 species are enumerated, 2 genera and 39 species being described as new.

There are naturally many additions to the list of species recognized in those parts of the "Flore générale de l'Indo-Chine" issued previous

¹Merrill, E. D. New species of plants from Indo-China. Univ. Calif. Publ. Bot. 10: 423-430. 1924; (II) 12: 127-143. 1926.

²Rendle, A. B. *et al.* On plants from South Annam by Messrs. E. G. Baker, S. Moore, A. B. Rendle, H. N. Ridley, and H. F. Wernham, with an introduction by the collector, Mr. C. Boden Kloss. Jour. Nat. Hist. Soc. Siam 4: 109-160. 1921.

to 1921, while in those parts issued since that date, various species proposed by the British botanists have been overlooked. Thus in the treatment of the Compositae (1932-34) the new species of *Vernonia*, *Blumea*, *Wedelia*, *Gynura*, and *Lactuca* are not accounted for; in the Rubiaceae (1922-23) no mention is made of the new species of *Hedyotis*, *Oldenlandia*, *Mussaenda*, *Psychotria*, and *Lasianthus*; in the Labiatae (1936) the new species of *Acrocephalus* and *Scutellaria* are lacking, and in the treatment of other families issued in 1921 or later one fails to find *Begonia langbianensis* Baker f. and *Melastoma Klossii* Baker f.

In the present paper forty-two new species are described, and about seventy-five previously described ones are for the first time accredited to Indo-China. Of these about twenty represent genera hitherto not recorded from that country. These genera are *Amentotaxus*, *Platycarya*, *Champereia*, *Holboellia*, *Pseuduvaria*, *Pileostegia* (*Schizophragma*), *Boenninghausenia*, *Pentaphylax*, *Turpinia*, *Platea*, *Bretschneidera*, *Tilia*, *Craigia*, *Hartia*, *Huodendron*, *Trigonotus*, *Elsholtzia*, *Wightia*, *Nertera*, and *Hymenopogon*. All but one are in groups that have been covered by published parts of the "Flore générale."

Supplementing these records notes on the nomenclature of certain species are included, some new names are proposed, and a few previously described species are reduced to synonymy. Here, as in other cases where comprehensive "floras" have been published, their parts appearing over a long period of time, it is found that the earlier parts, issued before many regions have even been visited by a botanist or a collector, are now inadequate as a guide to the actual flora. In most tropical countries vast accretions are to be expected to the list of known species as explorations progress and as the resulting collections are studied, and Indo-China is no exception to this observation.

TAXACEAE

Amentotaxus argotaenia (Hance) Pilger, Bot. Jahrb. **54**: 41. 1916.

Podocarpus argotaenia Hance, Jour. Bot. **21**: 357. 1883.

Podocarpus insignis Hemsl. Jour. Bot. **23**: 287. 1885.

Cephalotaxus argotaenia Pilger, Pflanzenreich **18(IV-5)**: 104. 1903.

INDO-CHINA, Tonkin, Chapa, *Petelot* 3897, August, 1933, alt. 1500 m. A monotypic genus, new to Indo-China, previously known from Formosa, Kwangtung, Hupeh, and Szechuan.

JUGLANDACEAE

Platycarya strobilacea Sieb. & Zucc. Abh. Akad. Münch. **3**: 742. *t.* 5, *f.* 1. 1843; Rehd. & Wils. in Sargent, Pl. Wils. **3**: 180. 1916.

INDO-CHINA, Tonkin, Chapa, *Petelot 4794*, August, 1933, alt. 1700 m. Japan, through central China to Kwangtung and Yunnan; the genus is new to Indo-China.

MORACEAE

Ficus cardiophylla Merr. Univ. Calif. Publ. Bot. **13**: 129. 1926.

Ficus Bonii Gagnep. Not. Syst. **4**: 86. 1927, Lecomte, Fl. Gén. Indo-Chine **5**: 767. 1928.

The type of *Ficus cardiophylla* Merr. is *Petelot 1291*, from Cho Ganh, Tonkin, and that of *F. Bonii* Gagnep. was from Lang-he, Mount Den, near Ninh-binh, Tonkin. I see no differences between the two. I have seen no specimens of *Bon 4045*, but *Balansa 741*, identified by Gagnepain as representing his species, safely represents *F. cardiophylla* Merr.

Ficus Tikoua Bureau, Jour. Bot. Morot **2**: 213. *t.* 7. 1888; Rehder, Jour. Arnold Arb. **17**: 76. 1936.

INDO-CHINA, Tonkin, route from Chapa to Lo Qui Ho, *Petelot 5981*, July, 1928.

The Indo-Chinese form differs somewhat from the Chinese one but I believe it represents the same species. *Ficus Bonatii* Lév. is a synonym. Yunnan, Szechuan, Kweichow, Kwangsi, Hunan, and Hupeh.

Ficus Cavaleriei Lév. Mém. Acad. Cienc. Barcelona III, **6**: 148. 1907, Repert. Sp. Nov. **4**: 83. 1907; Rehd. Jour. Arnold Arb. **10**: 128. 1929, **17**: 78. 1936.

INDO-CHINA, Tonkin, Chapa, *Petelot 5978*, April, 1930, alt. about 1400 m. Kweichow, Kwangsi (*Tsang 21962*), and Kiangsi (*Wang 464*).

URTICACEAE

Oreocnide obovata (C. H. Wright) Merr. Sunyatsenia **3**: 250. 1937.

Debregeasia obovata C. H. Wright in Forbes & Hemsl. Jour. Linn. Soc. Bot. **26**: 492. 1899.

Villebrunea paradoxa Gagnep. Not. Syst. **4**: 130. 1928, in Lecomte, Fl. Gén. Indo-Chine **5**: 881. *f.* 103, 22-23, *f.* 104, 2-3. 1929.

Wright's species of 1899 is manifestly the same as the one described by Gagnepain in 1928, and clearly *Oreocnide* (*Villebrunea*) is represented rather than a *Debregeasia*. The species occurs in Indo-China, Yunnan, and Kwangsi.

PROTEACEAE

Helicia annularis W. W. Sm. Notes Bot. Gard. Edinb. **10**: 178. 1918.

INDO-CHINA, Tonkin, Chapa, *Petelot 1626*, July, 1924, alt. about 1500 m. Yunnan.

The specimen is incomplete, the flowers fallen. It conforms closely to some of the Yunnan material referred to Smith's species. New to Indo-China.

***Helicia cauliflora* sp. nov.**

Arbor parva, 5–6 m. alta, inflorescentiis exceptis glabra, ramis teretibus, ramulis ultimis 1.5–2 mm. diametro; foliis lanceolatis vel anguste oblongo-lanceolatis, integris, coriaceis, 8–12 cm. longis, 2–3 cm. latis, utrinque angustatis, basi cuneatis, apice obtusis vel obscure breviter obtuse acuminatis, margine integerrimis, supra in sicco viridibus, nitidis, subtus pallide brunneis, nervis primariis utrinque circiter 8, distantibus, gracilibus, manifestis, subtus leviter elevatis, arcuato-anastomosantibus, reticulis primariis sublaxis, manifestis; petiolo 6–10 mm. longo, glabro; racemis 12–15 cm. longis, solitariis vel depauperato-fasciculatis, in trunco vel ramis vetustioribus e tuberculis lignosis usque ad 2.5 cm. diametro orientibus; rhachi consperse breviter adpresse brunneo-pubescente, pedicellis leviter pubescentibus, subcrassis, 5–7 mm. longis, in paribus dispositis sed ad basin vix connatis; floribus 3–3.5 cm. longis, ovario oblongo-ovoideo vel anguste oblongo, glabro, glandulis hypogynis discum 4-lobatum formantibus.

INDO-CHINA, Tonkin, route from Vinh Yen to Tam Dao, *A. Petelot 5684*, May, 1935, in savannas.

A species essentially characterized by its lanceolate, entire, relatively narrow leaves and particularly by its racemes being borne on woody tubercles on the trunk or main branches.

***Helicia Petelotii* sp. nov.**

Arbor circiter 10 m. alta, ramulis ultimis circiter 7 mm. diametro, decidue subcastaneo-pubescentibus; foliis coriaceis, late oblongo-oblancheolatis, usque ad 30 cm. longis et 9 cm. latis, integris, basi abrupte acutis, utrinque glabris vel subtus secus costam leviter pubescentibus, nervis primariis utrinque circiter 20, subtus elevatis, distinctis, curvatis, haud vel obscure anastomosantibus; petiolis circiter 2 cm. longis, subdecidue castaneo-pubescentibus, vetustioribus glabris; racemis saltem 25 cm. longis, in trunco vel in ramis vetustioribus, perspicue ferrugineo-pubescentibus; floribus circiter 3 cm. longis, pedicellis crassis, ad basin vix vel obscure connatis, 6–7 mm. longis, ferrugineo-pubescentibus; antheris 4 mm. longis; ovario glabro, glandulis hypogynis in disco annulato obscure 4-lobato connatis.

INDO-CHINA, Tonkin, slope west of the first ridge, Massif du Fan Tre

Pan, near Chapa, *A. Petelot* 5721, July, 1931, alt. about 1400 m.

In general, well characterized by its elongated, many-nerved, entire, and essentially glabrous leaves as well as by its racemes being borne on the trunk and larger branches.

***Helicia stenophylla* sp. nov.**

Arbor parva, ramulis novellis et inflorescentiis obscure consperse adpresse pubescentibus exceptis glabra, ramulis ultimis elongatis; foliis lanceolatis vel anguste lanceolatis, coriaceis, 9–11 cm. longis, 1–1.5 cm. latis, supra nitidis, in sicco plerumque viridibus, subtus brunneis, integris vel in parte quarta superiore remote paucisque serratis, utrinque angustatis, basi acutis, apice obtuse acuminatis, nervis primariis utrinque circiter 8, distantibus, subtus perspicuis, arcuato-anastomosantibus; petiolo 8–10 mm. longo; racemis gracilibus, axillaribus, solitariis, quam foliis multo longioribus, usque ad 25 cm. longis, obscure consperse adpresse cupreo- vel brunneo-pubescentibus, indumento subdeciduo; floribus parvis, extus parcissime adpresse pubescentibus, circiter 1.2 cm. longis, gracilibus, pedicellis circiter 4 mm. longis, ad basin in paribus leviter (ca. 1 mm.) connatis, bracteis anguste lanceolatis, acute acuminatis, 1–1.5 mm. longis, bracteolis solitariis, vix 1 mm. longis; ovario glabro, anguste ovoideo; glandulis hypogynis 4, pallidis, haud 1 mm. longis, subliberis vel leviter connatis.

INDO-CHINA, Annam, near Tourane, *J. & M. S. Clemens* 3487, May–July, 1927, a small tree along river margins.

A species strikingly characterized by its slender, slightly appressed-pubescent racemes which are much longer than the leaves, the latter being very narrow, lanceolate, gradually narrowed upward to the blunt acumen, and entire or with a very few widely scattered small teeth in the upper one-fourth.

OPILIACEAE

***Champereia manillana* (Blume) Merr. Philip. Jour. Sci. Bot. 7: 233. 1912, Enum. Philip. Fl. Pl. 2: 116. 1923.**

Cansjera manillana Blume, Mus. Bot. Lugd.-Bat. 1: 246. 1850.

Champereia Griffithiana Planch. ex Kurz, Jour. As. Soc. Bengal 44(2): 154. 1875; Gamble, Jour. As. Soc. Bengal 75(2): 277. 1912 (Mater. Fl. Malay. Penin. 5: 277).

INDO-CHINA, Tonkin, Vinh Yen Province, route from Vinh Yen to Tam Dao, alt. 100 m., *Petelot* 4822, April, 1933.

Including *Champereia Griffithiana* Planch. (1875) and *C. Griffithii* Kurz (1877) this species extends from Tenasserim and the Malay Peninsula, to Formosa, and through the Philippines to the Moluccas.

The Indo-Chinese form has cauline inflorescences, these sometimes also on the branches, but in other characters does not appear to be different from Blume's Philippine type. In the Philippine form the inflorescences are sometimes on the branches below the leaves. The genus is new to Indo-China.

OLACACEAE

Schoepfia fragrans Wall. Tent. Fl. Nepal. 18, *pl.* 9. 1824; Mast. in Hook. f. Fl. Brit. Ind. 1: 581. 1875.

INDO-CHINA, Laos, Tranninh Province, *Petelot 444*, July, 1931. India to western China.

CARYOPHYLLACEAE

Stellaria paniculata Edgw. Trans. Linn. Soc. 20: 35. 1846; Edgw. & Hook. f. in Hook. f. Fl. Brit. Ind. 1: 229. 1874.

INDO-CHINA, Tonkin, route from Lo Qui Ho to Ta Phinh, near Chapa, alt. 1700 m., *Petelot 4761*, October, 1933. Western Himalayan region and the Khasia Mountains to Siam and Yunnan.

Stellaria aquatica (L.) Scop. Fl. Carn. ed. 2, 1: 319. 1772.

Cerastium aquaticum Linn. Sp. Pl. 439. 1753.

INDO-CHINA, Tonkin, Chapa, *Petelot 5716*, April, 1936, along roads, alt. 1500 m. Widely distributed in Europe and Asia, introduced in North America.

Cerastium vulgatum Linn. Sp. Pl. ed. 2, 627. 1762; Edgew. & Hook. f. in Hook. f. Fl. Brit. Ind. 1: 228. 1874.

INDO-CHINA, Tonkin, Chapa, *Petelot 5717*, April, 1936, along roads. Widely distributed in Europe and temperate Asia, introduced in North America.

This is the Linnaean species *sensu latiore*, and is probably referable to the var. *trivialis* Link as defined by Edgeworth and Hooker f. The species is new to Indo-China.

RANUNCULACEAE

Clematis Buchananiana DC. Syst. 1: 140. 1818; Hook. f. Fl. Brit. Ind. 1: 6. 1872.

INDO-CHINA, Tonkin, Chapa, *Petelot 5248*, October, 1933, in thickets, alt. 1500 m. Eastern Himalayan region.

The specimen, with immature buds, is a much better match for Indian material, *Wallich, Hooker & Thomson*, than it is for Chinese material referred to de Candolle's species by Finet & Gagnepain, Bull.

Soc. Bot. France **50**: 541. 1904, which Rehder & Wilson, Sargent Pl. Wils. **1**: 324. 1913, refer to *Clematis nutans* Royle var. *thyrsoides* Rehd. & Wils.

LARDIZABALACEAE

Holboellia grandiflora Réaub. Bull. Soc. Bot. France **53**: 453. 1906; Gagnep. Bull. Mus. Hist. Nat. Paris **14**: 67. 1908; Rehder & Wils. in Sargent Pl. Wils. **1**: 346. 1913.

INDO-CHINA, Tonkin, Chapa, Massif du Song Ta Van, *Petelot 5935*, April, 1936, alt. about 1500 m. Szechuan. The genus is new to Indo-China.

The flowers are not quite mature, the staminate ones being about 1.2 cm. long, and the stamens 8 mm. long. Gagnepain indicates the stamens as 9 mm. and the sepals as 16 to 20 cm. long; the leaves on the specimen cited are 4-foliolate, and the leaflets very closely match Wilson's material on which the species was based.

Stauntonia Brunoniana Wall. List no. 4952. 1832, *nomen nudum*; Hemsl. in Hook. Ic. **29**: t. 2843. 1907; Wu, Notizbl. Bot. Gart. Berlin **13**: 367. 1936.

Parvattia Brunoniana Decne. Arch. Mus. Hist. Nat. Paris **1**: 190. t. 12A. 1837; Hook. f. Fl. Brit. Ind. **1**: 108. 1872; Gagnep. Bull. Mus. Hist. Nat. Paris **14**: 66. 1908.

Stauntonia trifoliata Griff. Notul. **4**: 330. 1854, Ic. Pl. As. t. 495. f. 2-3. 1854.

INDO-CHINA, Tonkin, Chapa, Massif du Song Ta Van, *Petelot 5933*, July, 1935, alt. about 1600 m. Yunnan and Assam. The second species of the genus to be recorded from Indo-China.

SCHISANDRACEAE

Illicium parvifolium sp. nov.

Arbor parva, glabra, ramis teretibus, ramulis ultimis circiter 1.5 mm. diametro; foliis verticillatis, oblongo-ellipticis vel ellipticis, subcoriaceis, 2.5-6 cm. longis, 1.5-2.5 cm. latis, apice obtusis vel late acutis vel subrotundatis, basi late acutis, in sicco supra viridibus, subtus pallide brunneis, nervis primariis utrinque 5-6, obscuris, obscure anastomosantibus, interdum subobsoletis; petiolo 5-10 mm. longo; floribus pro genere inter minores, axillaribus, solitariis, pedicellis circiter 1 cm. longis, perianthii segmentis majoribus orbiculari-ellipticis, concavis, rotundatis, circiter 1 cm. longis et 8 mm. latis, exterioribus multo minoribus; staminibus circiter 15, 4 mm. longis, filamentis crassis, 1.5-2 mm.

latis, antheris usque ad 2 mm. longis; carpellis circiter 10, anguste lanceolatis, longe acuminatis, glabris, acumine patulo vel subrefracto.

INDO-CHINA, Annam, Mount Bana, *J. & M. Clemens 4192*, May-July, 1927, in forests, a small tree near the summit of the mountain, flowers white, pink outside.

A species in facies closely approximating the Hainan *Illicium oliganthum* Merr. & Chun, characterized by its small, obtuse, obscurely nerved, verticillate leaves and its small flowers. It differs from *I. oliganthum* Merr. & Chun in its somewhat larger, more numerous, longer, long and slenderly acuminate carpels, their tips spreading or refracted.

Schisandra grandiflora (Wall.) Hook. f. Fl. Brit. Ind. 1: 44. 1872.

Kadsura grandiflora Wall. Tent. Fl. Nepal. 10, t. 14. 1824.

INDO-CHINA, Tonkin, Chapa, *Petelot 4768, 4788*, August, 1933, alt. 1500 to 2000 m. India to Yunnan, Szechuan, and Hupeh.

ANNONACEAE

Pseuduvaria indochinensis sp. nov.

Arbor 8-10 m. alta, dioica, ramis glabris, ramulis ultimis 1 mm. diametro, breviter pubescentibus; foliis oblongis, chartaceis 15-20 cm. longis, 5-6 cm. latis, acuminatis, basi late acutis vel subrotundatis, supra costa excepta glabris, pallide olivaceis, nitidis, subtus paullo pallidioribus, ad costam nervosque breviter pubescentibus glabrescentibus, nervis primariis utrinque 10-12, subtus elevatis, perspicuis, sub marginem arcuato-anastomosantibus; petiolo breviter pubescente, 3 mm. longo; floribus ♂ axillaribus et in axillis defoliatis, fasciculatis, pubescentibus, flavidis, pedicellis breviter pubescentibus 10-12 mm. longis, infra medio 1-bracteolatis, bracteolis orbiculari-reniformibus, 1 mm. longis, 1.5 mm. latis, late rotundatis; sepalis orbiculari-ovatis, rotundatis, 1.5-2 mm. longis, pubescentibus; petalis exterioribus reniformi-ovatis, rotundatis, pubescentibus, 2 mm. longis, 2.6 mm. latis, interioribus arcuatis, stipitatis, stipite 3 mm. longo, lamina triangulari-ovata, 4 mm. longa et lata, extus pubescente, intus glabra, margine ciliata; antheris circiter 30, 0.8 mm. longis, connectivo truncato.

INDO-CHINA, Tonkin, Hoa Binh Province, near Muong Thon, route from Hanoi to Hoa Binh, *A. Petelot 4698*, March, 1933.

The first representative of the genus to be recorded from Indo-China. Most botanists place *Pseuduvaria* under *Mitrephora*, but the genus is clearly more closely allied to *Orophea*, differing from both *Mitrephora* and *Orophea* in being strictly dioecious.

Fissistigma Petelotii sp. nov.

Frutex scandens, floribus exceptis glaber vel subglaber, ramis teretibus, subatris, in sicco plus minusve corrugatis; foliis coriaceis, oblongis vel oblongo-ellipticis, 20–26 cm. longis, 9–10 cm. latis, apice rotundatis vel late obtusis, basi late rotundatis, supra pallide olivaceis, nitidis, glaberrimis, subtus glaucis vel subglaucis, obscure breviter adpresse pubescentibus, nervis primariis utrinque circiter 15, subtus perspicuis, elevatis, patulo-curvatis, arcuato-anastomosantibus, reticulis gracilibus, laxis; petiolo 1–1.5 cm. longo, atro, glabro; floribus axillaribus, alabastro subgloboso, pedicellis circiter 1.5 cm. longis, sursum incrassatis, breviter adpresse subferrugineo-pubescentibus; calycis lobis subtriangularibus, coriaceis, circiter 1 cm. latis, glabris vel leviter pubescentibus, in sicco verruculosus; petalis exterioribus late ovatis, acutis, 12 mm. longis, coriaceis, concavis, extus dense breviter ferrugineo-pubescentibus, intus sursum cinereo-pubescentibus, deorsum glabris, interioribus paullo brevioribus quam exterioribus, intus glabris, extus breviter pubescentibus; staminibus numerosis, antheris 2.2 mm. longis; carpellis paucis, lanceolatis, sursum leviter pubescentibus, cum stylis 5 mm. longis, ovulis numerosis.

INDO-CHINA, Tonkin, Province of Hoa Binh, near Muong Thon, route from Hanoi to Hoa Binh, *Petelot 4862*, March, 1933.

Characterized by being nearly glabrous, except for the subglobose flowers, as well as by its elliptic to oblong-elliptic, ample leaves which are broadly rounded at their bases and rounded or broadly acute at apices.

Fissistigma acuminatissimum sp. nov.

Frutex scandens, ramis teretibus, glabris, ramulis breviter adpresse pubescentibus, circiter 1 mm. diametro; foliis lanceolatis vel oblongo-lanceolatis, graciliter acuminatis, basi late acutis, 8–14 cm. longis, 2–4 cm. latis, chartaceis vel subcoriaceis, in sicco supra pallide olivaceis, glabris vel parcissime adpresse ciliatis, subtus brunneis, consperse breviter adpresse pubescentibus; nervis primariis utrinque circiter 20, subtus perspicuis, elevatis; petiolo 6–10 mm. longo, breviter adpresse pubescente; floribus terminalibus axillaribusque, solitariis vel binis vel trinis, circiter 2 cm. longis, pedicellis circiter 1.5 cm. longis, breviter pubescentibus, bracteolis lanceolatis, acuminatis, circiter 4 mm. longis; sepalis lanceolatis vel oblongo-lanceolatis, perspicue acuminatis, intus glabris, extus adpresse pubescentibus, 8 mm. longis, deorsum circiter 3.5 mm. latis; petalis exterioribus oblongo-lanceolatis, acuminatis, 2 cm. longis, deorsum 8 mm. latis, extus dense adpresse pubescentibus, intus puberu-

lis; sepalis interioribus quam exterioribus paullo minoribus, circiter 1.6 cm. longis, extus pubescentibus, intus in parte inferiore glabris, sursum puberulis; staminibus numerosis, multiseriatis, 2 mm. longis, connectivo crasso, obtuso; ovario cum stylo 3.5 mm. longo, adpresse hirsuto, stylis hirsutis, cylindratis; ovulis circiter 6.

INDO-CHINA, Tonkin, Chapa, Massif du Song Ta Van, *A. Petelot 5797* (type), April, 1936, in forests, alt. about 1500 m. The same species is apparently represented by *Petelot 4864*, from Lo Qui Ho, Chapa, a specimen with very immature 3-flowered inflorescences with young buds only.

This seems to be allied to *Fissistigma chrysoericeum* (Finet & Gagnep.) Merr., but the leaves have twice as many lateral nerves as does that species.

LAURACEAE

Beilschmiedia foveolata sp. nov.

Arbor glabra, circiter 10 m. alta, ramis ramulisque teretibus, laevis; foliis chartaceis vel subcoriaceis, 10–15 cm. longis, 3.5–5 cm. latis, basi acutis, apice caudato-acuminatis, acumine 1.5–2 cm. longo, recto vel falcato, in sicco utrinque subconcoloribus, pallide olivaceo-viridibus, subnitidis, nervis primariis utrinque circiter 7, subcurvato-adscendentibus, arcuatis, in utraque pagina dense manifesteque foveolato-reticulatis, costa supra plana, subtus elevata; petiolo 2–3 cm. longo; floribus ignotis; infructescentiis in axillis superioribus, brevibus, pedicellis 8–15 mm. longis, paullo incrassatis, siccis sursum circiter 5 mm. diametro; fructibus globosis, 2 cm. diametro.

INDO-CHINA, Tonkin, Chapa, alt. 1700 m., *Petelot 5380*, August, 1930.

In spite of the fact that the flowers are unknown, I judge this to be a *Beilschmiedia* in the alliance with *B. Foxiana* Gamble of the Malay Peninsula, another species characterized by its densely subfoveolate-reticulate leaves. *B. foveolata* differs in its caudate-acuminate leaves, apparently shorter inflorescences, and in its globose not ellipsoid, smooth or somewhat wrinkled, not pustular fruits.

Beilschmiedia Roxburghiana Nees in Wall. Pl. As. Rar. 2: 69. 1831;

Liou, Laur. Ch. Indoch. 110. 1933.

Laurus bilocularis Roxb. Fl. Ind. ed. 2, 2: 311. 1832.

INDO-CHINA, Tonkin, Chapa, along the Ngoi Bo stream, alt. 1200 m., *Petelot 5379*, *5379 bis*, February and July, 1931, the former in flower, the latter in fruit. Assam to Tenasserim, Yunnan and Kwangsi.

Chun's record of this as occurring in Kwangtung was based on a

reduction of *Beilschmiedia fagifolia* Nees which may or may not be correct. I have seen no Kwangtung material that I would refer to *B. Roxburghiana* Nees. The species is new to Indo-China.

Lindera Chunii Merr. Lingnan Sci. Jour. **7**: 307. 1931; Liou, Laur. Ch. Indoch. 133. 1933.

INDO-CHINA, Tonkin, Province of Thai Nguyen, route from Hanoi to Thai Nguyen, *Petelot 4751, 4752*, February, 1933. Kwangsi, Kwangtung, and Hainan. The species has already been recorded from Indo-China by Liou, on the basis of *Poilane 10289* from Quang-tri, Annam.

Machilus oreophila Hance, Ann. Sci. Nat. IV Bot. **18**: 227. 1862; Liou, Laur. Ch. Indoch. 51. 1933.

INDO-CHINA, Tonkin, route from Tam Dao to Vinh Yen, *Petelot 4680*, April, 1931. Fukien, Yunnan.

The type was from Fukien; Liou credits the species to Yunnan, but gives no other range. The inflorescences are longer peduncled than in *6789 Herb. Hance*, the type collection by De Grijs, herb. British Museum.

Litsea verticillata Hance, Jour. Bot. **21**: 356. 1883; Liou, Laur. Ch. Indoch. 171. 1933; Allen, Ann. Missouri Bot. Gard. **25**: 373. 1937.

Litsea multiumbellata Lecomte, Nouv. Arch. Mus. (Paris) V. **5**: 85. 1913, Fl. Gén. Indo-Chine **5**: 133. 1914; Liou, l. c.

INDO-CHINA, Tonkin, Thai Nguyen, *Petelot 4888*, October, 1933, in open forests. Kwangsi, Kwangtung, and Hainan.

Liou thought that both *Litsea multiumbellata* Lecomte and *L. brevipetiolata* Lecomte might prove to be but forms of Hance's species. He further notes the close resemblance of all three to *Actinodaphne glomerata* Nees. Dr. Allen placed *L. multiumbellata* Lecomte as a synonym of *Litsea verticillata* Hance and *L. brevipetiolata* Lecomte as a variety of the same species. I judge that with almost equal propriety one might place the species in either *Litsea* or in *Actinodaphne*.

Litsea euosma W. W. Sm. in Notes Bot. Gard. Edinb. **13**: 166. 1921; Allen, Ann. Missouri Bot. Gard. **25**: 368. 1937.

INDO-CHINA, Tonkin, route from Laokay to Chapa, alt. 1000 to 1300 m., *Petelot 3381*, February, 1929. Yunnan, Burma, Indo-China.

This is apparently distinct from *Litsea cubeba* (Lour.) Pers. It may not, however, be distinct from *L. mollis* Hemsl., the type of the latter being a specimen with immature flowers. *L. mollifolia* Chun (1934) is

a synonym of Hemsley's species, and is an unnecessary name as *Litsea mollis* Hemsl. (1891) is older than *L. mollis* Boerl. (1900).

Cryptocarya hainanensis Merr. Philip. Jour. Sci. **21**: 343. 1922; Liou, Laur. Ch. Indoch. 100. 1933.

INDO-CHINA, Tonkin, Province of Bac Giang, route from Hanoi to Langson, near Song Cau, *Petelot* 5245, March, 1933. Hainan.

This has already been recorded from Indo-China by Liou, l. c., on the basis of specimens collected in Annam by Poilane.

PAPAVERACEAE

Corydalis temulifolia Franch. Jour. Bot. Morot **8**: 291. 1894; Repert. Sp. Nov. **20**: 288. 1924.

INDO-CHINA, Tonkin, Chapa, *Petelot*, s. n., February, 1930, on rocks in a cascade, route from Lo Qui Ho to Ta Phinh, alt. 1700 m. Hupeh, Szechuan, Kwangsi, and Yunnan; new to Indo-China.

SAXIFRAGACEAE

Polyosma dolichocarpa sp. nov.

Arbor circiter 10 m. alta, perspicue villosa, ramis ramulisque dense pubescentibus; foliis coriaceis, oblongo-ellipticis vel anguste oblongo-obovatis, integerrimis, graciliter acute acuminatis, basi acutis, 7–10 cm. longis, 3–4 cm. latis, supra glabris, olivaceis, nitidis, subtus pallidioribus, perspicue subvillosis; nervis primariis utrinque 8–10, supra subimpressis, subtus elevatis, manifestis, arcuato-anastomosantibus; petiolo 1–1.5 cm. longo, dense villoso; racemis terminalibus, solitariis, sub fructu 10–12 cm. longis, perspicue pubescentibus, pedunculatis; pedicellis circiter 5 mm. longis, villosis; bracteolis villosis, lineari-lanceolatis, 2–4 mm. longis; fructibus anguste oblongis, 13 mm. longis, circiter 4 mm. diametro, sursum leviter angustatis, in sicco perspicue longitudinaliter sulcatis, consperse pubescentibus, sepalis persistentibus oblongo-ovatis vel triangulari-ovatis, acutis, 1.5–2 mm. longis.

INDO-CHINA, Annam, Mount Bana, near Tourane, *J. & M. S. Clemens* 4221, May-July, 1927, a slender tree up to 40 ft. high, in forests, the fruits purple.

A species strongly characterized by its indumentum, its acutely acuminate, prominently nerved leaves, and especially by its greatly elongated, prominently sulcate fruits.

Pileostegia viburnoides Hook. f. & Th. Jour. Linn. Soc. Bot. **2**: 76. t. 2. 1857; C. B. Clarke, Hook. f. Fl. Brit. Ind. **2**: 405. 1878.

Schizophragma viburnoides Stapf, Bot. Mag. **155**: t. 9262. 1931.

INDO-CHINA, Tonkin, near Chapa, *Petelot 1465*, August, 1932, alt. about 1500 m. Liu Kiu Islands and Formosa to Kwangtung, Kiangsi, Kwangsi, Kweichow, Hupeh, and Szechuan. The genus is new to Indo-China, whether this species be considered as a *Pileostegia* or as a *Schizophragma*.

PITTOSPORACEAE

Pittosporum oblongilimum sp. nov.

Frutex vel arbor parva, glabra, ramis teretibus, ramulis ultimis 2 mm. diametro; foliis coriaceis, anguste oblongis, alternis vel subverticillatis, in sicco olivaceis, supra nitidis, 10–18 cm. longis, 2–3 cm. latis, acuminatis, basi acutis, nervis primariis utrinque circiter 12, obscuris, distantibus, inconspicue arcuato-anastomosantibus; petiolo 5–10 mm. longo; cymis terminalibus, fasciculatis, 3–4 cm. longis, paucifloris, laxis, gracilibus, pedicellis 6–10 mm. longis; calycis tubo 1.5–2 mm. longo, lobis 5, oblongis vel oblongo-ovatis, apice obtusis vel subacutis, 2.5–3 mm. longis, glabris; petalis circiter 14 mm. longis, sursum 4 mm. latis, apice rotundatis, deorsum leviter angustatis, basi 2 mm. latis; filamentis 8 mm. longis, antheris oblongis, 3 mm. longis, introrse dehiscentibus, basi obtusis; ovario breviter stipitato, leviter pubescente, 1-loculari, placentis 2, quaque 6-ovulatis; stylis glabris.

INDO-CHINA, Tonkin, Chapa, *A. Petelot 5947*, April, 1936, alt. about 1500 m.

A species well characterized by its rather thick, narrowly oblong or almost strap-shaped, rather abruptly acuminate, obscurely nerved leaves and its slender, lax, few-flowered cymes which are born in terminal fascicles, 2 to 4 at the tip of each branchlet. Judging from the ovary characters the capsules should be 2-valved.

HAMAMELIDACEAE

Altingia chinensis (Champ.) Oliver ex Hance, Jour. Linn. Soc. Bot. **13**: 103. 1873; Lecomte, Bull. Mus. Hist. Nat. Paris **30**: 391. 1924.

INDO-CHINA, Tonkin, Chapa, *Petelot 5944*, April, 1936. Kwangtung, Kwangsi.

The species is closely allied to the Malaysian *A. excelsa* Noronha. It has already been recorded from Chapa by Lecomte as an additional species for the Indo-Chinese flora.

Altingia gracilipes Hemsl. var. **serrulata** Tutcher, Rep. Bot. For. Dep. Hongkong **1914**: 31. 1915; Chun, Sunyatsenia **1**: 173. 1933, 242. 1934.

INDO-CHINA, Annam, near Tourane, *Clemens* 3388. I also refer *Tsiang* 6677 from Kweichow here. Hongkong.

In his treatment of the Hamamelidaceae of Indo-China, Guillaumin admits *A. gracilipes* Hemsl. and includes in his description the typical form with entire leaves and forms with toothed leaves.

ROSACEAE

Photinia prunifolia (H. & A.) Lindl. Bot. Reg. **23**: *sub t.* 1956. 1837.

Photinia serrulata Lindl. var. *prunifolia* H. & A. Bot. Beechey Voy. 185. 1833.

INDO-CHINA, Tonkin, Massif du Tam Dao, *Petelot* 3866, December, 1931, in forests, alt. about 1000 m. Southeastern China; new to Indo-China.

Fragaria nilgerrensis Schlecht. ex J. Gay, Ann. Sci. Nat. IV. Bot. **8**: 206. 1857; Hook. f. Fl. Brit. Ind. **2**: 344. 1878.

INDO-CHINA, Tonkin, near Chapa, route to the pass of Lo Qui Ho, *Petelot* 4597, July, 1931, alt. about 1800 m. Khasia and Nilghiri Mountains in India to western and central China; new to Indo-China.

Pygeum lancilimbus sp. nov.

Arbor 8–15 m. alta, ramis teretibus, glabris, ramulis circiter 1 mm. diametro, breviter pubescentibus; foliis lanceolatis, chartaceis ad subcoriaceis, graciliter subcaudato-acuminatis, basi acutis vel subrotundatis, 6–11 cm. longis, 1.5–2.5 cm. latis, supra glabris, olivaceo-brunneis, subtus pallidioribus, junioribus consperse pubescentibus, vetustioribus glabris, glandulis binis, immersis, 2 mm. latis, usque ad 8 mm. supra laminae basim in pagina inferiore locatis; nervis primariis utrinque circiter 5, curvato-adscendentibus, gracilibus, reticulis subobsoletis; petiolo 5–8 mm. longo, primo pubescente, demum glabrescente; spicis axillaribus, solitariis, petiolo vix longioribus, densifloris, ferrugineo-pubescentibus; bracteolis deciduis, trifidis, lobis linearibus, usque ad 4 mm. longis, intermedio quam lateralibus brevioribus; floribus confertis, sessilibus vel brevissime pedicellatis, calycis tubo infundibuliformi, 2 mm. longo, 3 mm. diametro, extus consperse adpresseque ferrugineo-pubescente, intus glabro vel fundo plus minusve barbato, lobis 6 vel 7, oblongo-ovatis, plerumque obtusis, 0.5–1 mm. longis, ferrugineo-ciliatis; petalis 0; staminibus circiter 16, filamentis glabris, usque 4 mm. longis; ovario glabro.

INDO-CHINA, Tonkin, neighborhood of Chapa, Massif du Fan Tre Pan, alt. 1400–1700 m., *Petelot* 4499 (type), 4589, September, 1931, and August, 1930; near Chapa, alt. 1200 m., *Petelot* 4588, July, 1930;

route to Lo Qui Ho, alt. 2000 m., *Petelot 4592*, September, 1931, a tree 8 to 15 m. high.

A species well characterized by its lanceolate, slenderly caudate-acuminate, obscurely reticulate leaves, its dense axillary spikes about equaling the petioles in length. The characteristic trifold bracteoles fall before the flowers open.

Prunus Wallichii Steud. Nomencl. ed. 2, 2: 404. 1841; Merr. Contr. Arnold Arb. 8: 72. 1934.

Cerasus acuminatus Wall. List no. 719, 1829, *nomen nudum*, Pl. As. Rar. 2: 78. t. 181. 1831.

Prunus acuminata D. Dietr. Syn. 3: 42. 1843, non Michx.

INDO-CHINA, Tonkin, Chapa, *Petelot 4587, 5705*, October, 1932, and August, 1935, in forested ravines, alt. 1500 to 1700 m. Himalayan region to Yunnan, Kwangsi and Kweichow, Burma, Siam, and northern Sumatra. New to Indo-China.

LEGUMINOSAE

Caesalpinia stenoptera sp. nov.

FIGURE 1.

Frutex scandens, *C. nugae* affinis, differt capsulis valde inaequilateralibus, in latere angustiore rectis vel leviter concavis, distincte alatis; ramis teretibus, glabris; foliis circiter 15 cm. longis, bipinnatis, rhachibus primariis secundariisque remote retrorse aculeatis, aculeis circiter 1 mm. longis; pinnis 2-paribus, 7–10 cm. longis; foliolis plerumque 3-paribus, chartaceis vel subcoriaceis, aequilateralibus, ovatis vel oblongo-ovatis vel late oblongo-lanceolatis, perspicue obtuse acuminatis, basi obtusis vel subrotundatis, utrinque nitidis, 2.5–5 cm. longis, 1.3–2 cm. latis, subreticulatis, nervis primariis utrinque circiter 10; leguminibus suborbicularibus, compressis, 3–3.5 cm. longis, circiter 3 cm. latis, valde inaequilateralibus, in latere latiore suborbicularibus, in latere angustiore subrectis vel convexis et distincte crasse alatis, ala circiter 2 mm. lata, stylis persistentibus circiter 8 mm. longis.

INDO-CHINA, Tonkin, Cao Bang Province, Ban Gioc, *A. Petelot 4757*, June, 1933.

A species in the group with *Caesalpinia nuga* Ait., but with very differently shaped fruits, distinctly winged on the nearly straight or slightly convex narrow side, the wider side suborbicular and not at all winged.

Bauhinia dolichobotrys sp. nov. (§ *Phanera*).

Frutex alte scandens, inflorescentiis exceptis glaber, ramulis ultimis teretibus, glabris, nitidis, laevibus, purpureo-brunneis, 4–5 mm. diametro; foliis oblongo-ellipticis, coriaceis, nitidis, olivaceis, subtus paullo

pallidioribus, 7–12 cm. longis, 3–5 cm. latis, basi rotundatis, 5-nerviis, apice breviter acuminatis, integris, apiculatis, vel leviter retusis, nervis primariis supra basin utrinque circiter 3, gracilibus, haud perspicuis; petiolo glabro 1.5–3.5 cm. longo; cirrhis glabris vel subglabris, circiter 3 cm. longis, gracilibus; inflorescentiis terminalibus, simpliciter race-

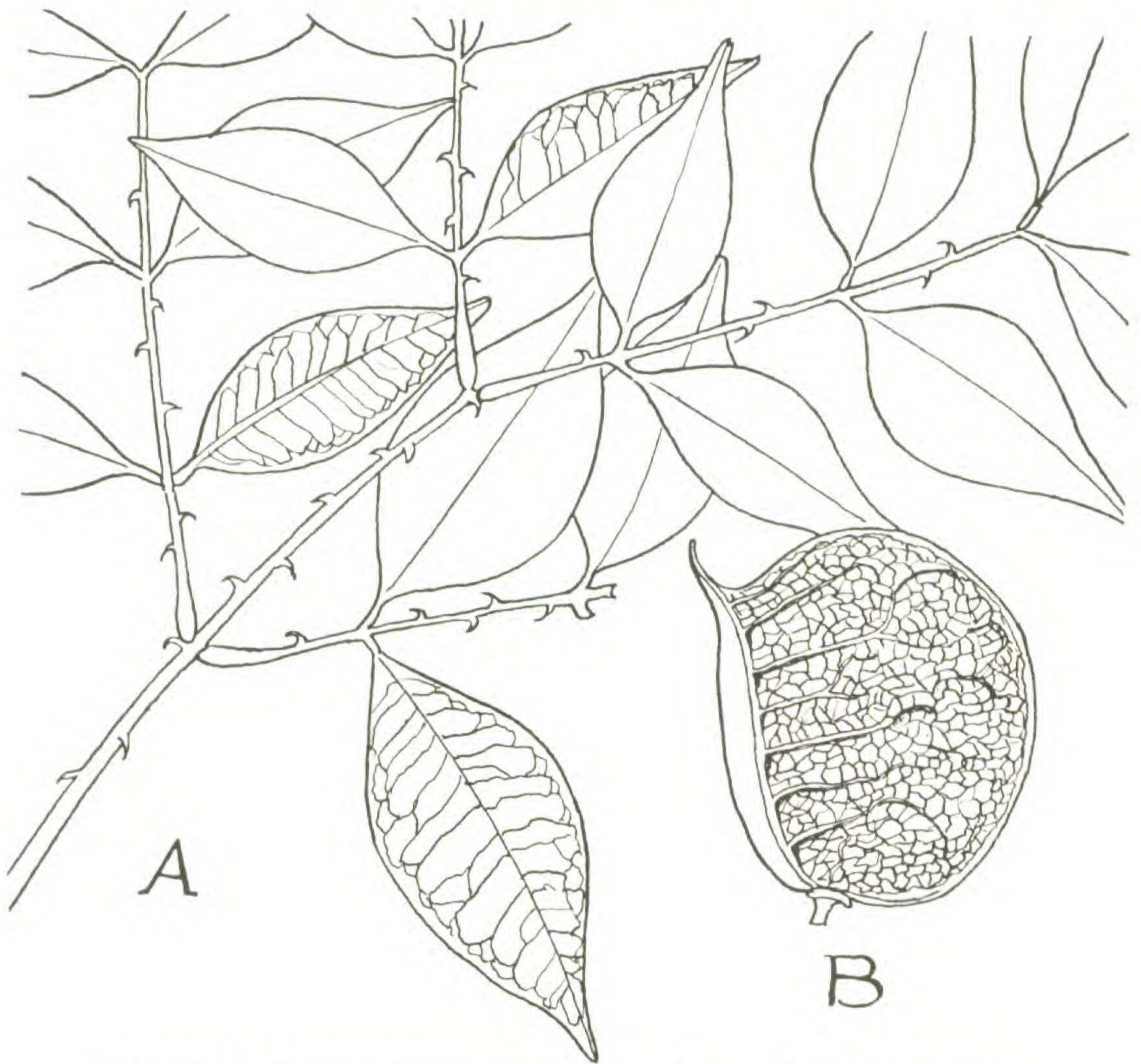


FIGURE 1. *CAESALPINIA STENOPTERA* Merr. A, leaf; B, fruit.

mosis, multifloris, saltem 35 cm. longis, dense breviterque nitide cupreo-pubescentibus, pedicellis circiter 2 cm. longis, bracteolis acicularibus, curvatis, usque ad 1 cm. longis, alabastris oblongo-ellipsoideis; floribus circiter 4 cm. longis, coccineis, calyce 2 cm. longo, dense breviterque nitide cupreo-pubescente, in parte inferiore circiter 7 mm. longa et 5 mm. diametro cylindraceo, sursum ampliato, et usque ad 1 cm. latis, dentibus 5, vix 3 mm. longis, usque ad 6 mm. latis, plerumque obtusis; petalis omnibus unguiculatis, utrinque plusminusve pubescentibus, 2.5–3 cm. longis, vexillo 1.5 cm. lato, late ovato, basi leviter cordato,

apice obscure apiculato, petalis reliquis angustioribus, rotundatis; staminibus fertilibus 3, filamentis glabris, 3.5 cm. longis, staminoideis 2, glabris, 4–6 mm. longis; ovario pubescente, ovulis circiter 10.

INDO-CHINA, southern Annam, Dalat, *R. W. Squires 818*, April 17, 1931, climbing to a height of 20 m. in forests along river banks, flowers scarlet.

A remarkable species characterized by its oblong-elliptic, entire or very slightly retuse, never cleft or divided leaves, its greatly elongated, terminal, simple, many-flowered simple racemes, and its characteristic flowers. Counting the lower pedicels from which the flowers have fallen and the numerous crowded buds in the upper part of the raceme, each individual raceme may bear in excess of 150 flowers. The racemes elongate gradually as the flowers develop. It is not closely allied to any of the 41 species admitted by Gagnepain as occurring in Indo-China, but in accordance with his arrangements falls in the group of those with three stamens and pubescent ovaries.

RUTACEAE

Boenninghausenia albiflora (Hook.) Rchb. ex Heynhold, Nomencl.

Bot. Hort. 1: 126. 1840; Rehd. Jour. Arnold Arb. 14: 225. 1933.

Ruta albiflora Hook. Exot. Fl. t. 79. 1823–27.

INDO-CHINA, Tonkin, Chapa, alt. 1600 m., *Petelot 4762*, August, 1933. India to Japan, southward to Luzon and Java. The genus is new to Indo-China.

SIMARUBACEAE

Ailanthus sutchuensis Dode, Bull. Soc. Dendr. France 1907: 192, fig.

a. Repert. Sp. Nov. 7: 8. 1909.

Ailanthus altissima (Mill.) Swingle var. *sutchuensis* Rehd. & Wils. (*sutchuenensis*) in Sargent, Pl. Wils. 3: 449. 1917.

INDO-CHINA, Tonkin, Chapa, *Petelot 5832*, August, 1930, alt. about 1600 m. Yunnan, Szechuan, Hupeh.

Dode's species is a weak one, very closely allied to *Ailanthus altissima* (Mill.) Swingle, a common species in China, usually known as *A. glandulosa* Desf. Rehder & Wilson may be correct in reducing it to varietal status under *A. altissima*. The fruits, however, are distinctly larger than in the latter species.

MELIACEAE

Munronia Petelotii sp. nov.

FIGURE 2.

Suffrutex erectus, simplex, circiter 30 cm. altus; caulibus teretibus,

deorsum glabris, pallidis, sursum plusminusve breviter pubescentibus, novellis dense pubescentibus; foliis 1-foliolatis, longe petiolatis, membranaceis, oblongis vel late oblongo-oblanco-latis, 9–11 cm. longis, 2–3 cm. latis, integris, supra glabris, subtus obscure breviter pubescentibus, basi cuneatis vel acutis, apice acutis vel obtusis apiculatisque, nervis

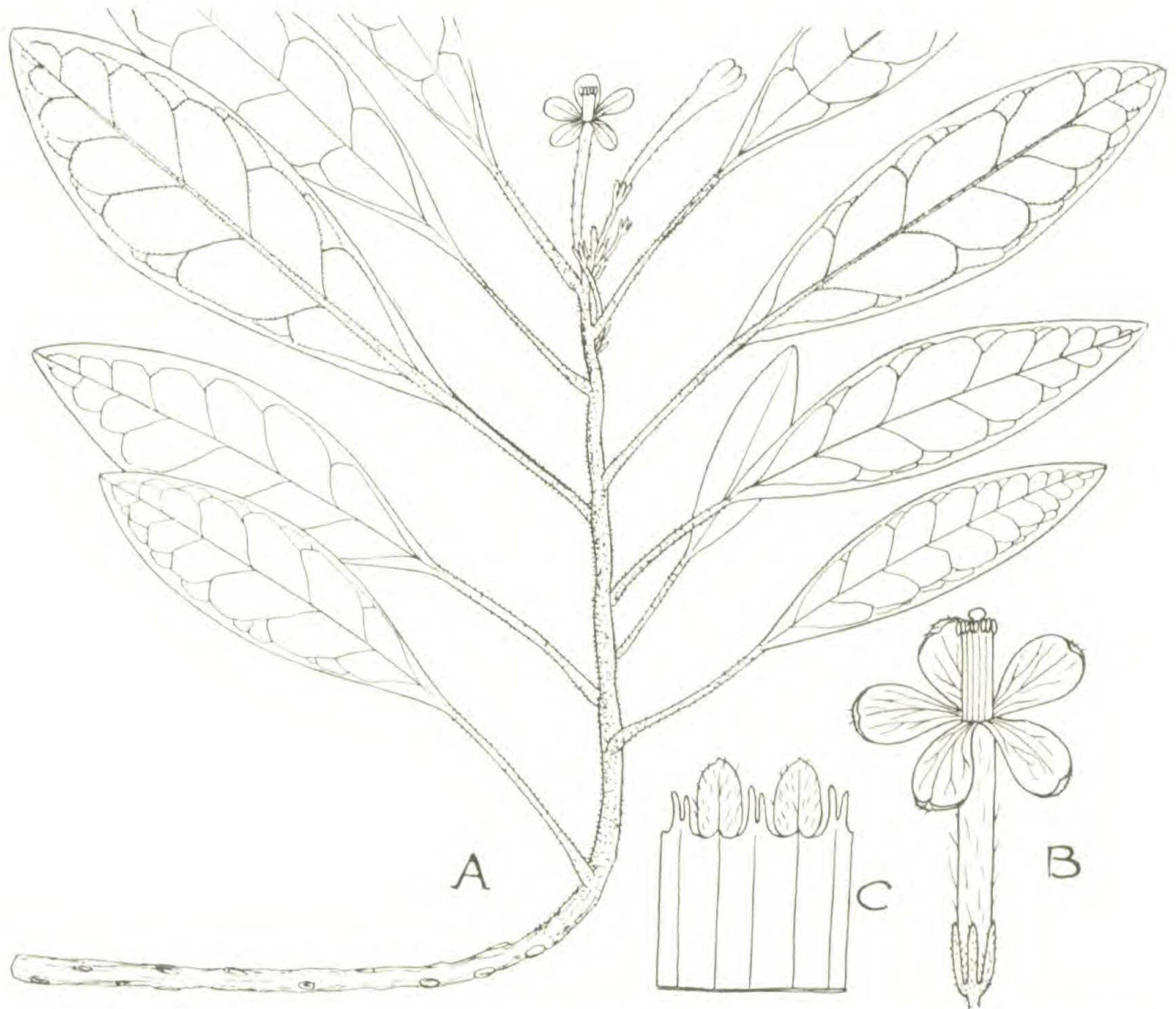


FIGURE 2. *MUNRONIA PETELOTHI* Merr. A, an entire plant; B, a flower, enlarged; C, details of the staminal tube showing two anthers and the cleit lobes.

primariis utrinque 5 vel 6, gracilibus, vix vel obscure arcuato-anastomosantibus; petiolo gracili, leviter pubescente, 2.5–3 cm. longo; floribus paucis, pedicellis circiter 7 mm. longis; sepalis 5, anguste oblongis, obtusis, leviter pubescentibus, 2.5 mm. longis, 0.8 mm. latis; corollae tubo 1.5 cm. longo, extus consperse parcissime pubescente, circiter 1.5 mm. diametro; lobis 5, obovatis, 7–8 mm. longis, 4.5–5 mm. latis, apice rotundatis, leviter cucullatis, tubo stamineo exserto, lobis ad 1 mm. longis, fissis; antheris quam lobis duplo longioribus.

INDO-CHINA, Annam, Quang Binh Province, My Duc, *Petelot s. n.*

July, 1930, a small plant growing in a hole or cavity on the wall of a cave. Herb. N. Y. Botanical Garden.

This is apparently sufficiently characterized by its slenderly petioled, thin, entire, 1-foliolate leaves. The lower part of the stem of the single plant seen appears as if it might have been decumbent.

Munronia heterophylla sp. nov.

Suffrutex erectus, simplex, 15–30 cm. altus, caulibus teretibus, glabris, 2 mm. diametro, sursum breviter pubescentibus; foliis in partibus superioribus plusminusve confertis, pinnatis, 3- vel 5-foliolatis, 5–10 cm. longis, petiolo breviter pubescente, foliolis membranaceis, olivaceis, valde variabilibus, integris vel irregulariter crenato-serratis vel crenatis, obovatis vel lanceolatis, apice rotundatis vel acuminatis, 1.5–5 cm. longis, 0.6–2 cm. latis, utrinque parce consperseque pubescentibus, nervis primariis utrinque 3–7, gracilibus; inflorescentiis axillaribus terminalibusque 1-floris vel depauperato-racemosis, breviter pubescentibus; floribus albidis, 5-meris, sepalis oblongis, obtusis vel acutis, breviter pubescentibus, 2 mm. longis; corollae tubo glabro, circiter 2.3 cm. longo 1 mm. diametro; lobis 5, patulis, glabris, ellipticis, subacutis, 1.3–1.5 cm. longis, 5–7 mm. latis; tubo stamineo 3 cm. longo, perspicue exserto, glabro; antheris 8, vix 1 mm. longis; disco cylindrico, 7 mm. longo; ovario obscure pubescente.

INDO-CHINA, southern Annam, near Dalat, *R. W. Squires* 823, April 12, 1932, in open rocky forests, only a few plants seen.

This is apparently most closely allied to *Munronia sinica* Harms from which it differs notably in its vegetative characters and in its much shorter flowers. It is not closely allied to the two species hitherto recorded from Indo-China, *Munronia pauciflora* Harms and *M. Robinsonii* Pellegr. More often the lower leaves are 3-foliolate and rather prominently toothed, while the upper ones usually have 5 leaflets which are normally entire and often larger than those on the lower leaves; again the terminal leaflet is always larger than the lateral ones.

EUPHORBIACEAE

Acalypha Gagnepainii nom. nov.

Acalypha siamensis Gagnep. Bull. Soc. Bot. France 70: 874, Feb. 28, 1923, Lecomte Fl. Gén. Indo-Chine 5: 340. 1925, non Oliv. 1922.

SIAM, *Pierre*.

Acalypha siamensis Oliv. in Gage, Rec. Bot. Surv. India 9: 238. 1922; Ridl. Fl. Malay Penin. 3: 274. 1924.

Acalypha Euvardii Gagnep. Bull. Soc. Bot. France 70: 871. 1923,
Lecomte Fl. Gén. Indo-Chine 5: 336. 1925.

INDO-CHINA, Malay Peninsula, Sumatra.

Aporosa yunnanensis (Pax & Hoffm.) Metcalf, Lingnan Sci. Jour.
10: 486. 1931.

Aporosa Wallichii Hook. f. var. *yunnanensis* Pax & Hoffm. Pflanzenr.
81 (IV. 147. xv): 90. 1922.

Aporosa lanceolata sensu Hance, Jour. Bot. 17: 14. 1879, non Thwaites.

INDO-CHINA, Tonkin, Hoa Binh Province, route from Hanoi to Hoa Binh, *Petelot* 5867, May 23, 1936, a shrub 3 to 4 m. high, in thickets, calcareous formations. Yunnan, Kwangsi, Kwangtung, and Hainan.

This may have been included by Gagnepain, Lecomte Fl. Gén. Indo-Chine 5: 562. 1927, in his concept of *Aporosa Wallichii* Hook. f., as he credits the latter to Yunnan.

Macaranga Henryi (Pax & Hoffm.) Rehd. Sunyatsenia 3: 240. 1936.

Mallotus Henryi Pax & Hoffm. Pflanzenr. 63 (IV. 147. vii): 177. 1914.

INDO-CHINA, Tonkin, Chapa, *Petelot* 1390, 1799, July, 1924, and 1925, with pistillate and staminate flowers. Kwangsi and Yunnan.

Rehder in transferring this distinct species from *Mallotus* to *Macaranga*, where it manifestly belongs, has given a very complete description based on abundant material. It belongs in the section ECHINOCARPAE.

PENTAPHYLACACEAE

Pentaphylax spicata sp. nov.

Arbor glabra, circiter 20 m. alta, ramis ramulisque teretibus, ramulis ultimis circiter 2 mm. diametro; foliis coriaceis, ellipticis vel oblongo-ellipticis, 6–10 cm. longis, 3–5 cm. latis, perspicue acuminatis, basi acutis, supra olivaceo-viridibus; nervis primariis utrinque circiter 7, gracilibus, adscendentibus, haud perspicuis, obscure anastomosantibus; petiolo 1–1.5 cm. longo; inflorescentiis spicatis, axillaribus, binis, usque ad 6 cm. longis; floribus ignotis; fructibus junioribus ellipsoideis, 5 mm. longis, glabris 5-loculatis, stylis 2 mm. longis, stigmatibus 5, brevissimis; sepalis persistentibus 5, coriaceis, late ovatis, obtusis, 2.5 mm. longis, margine breviter ciliatis; bracteolis binis, ovatis, acutis vel obtusis, 1.5 mm. longis, margine leviter ciliatis.

INDO-CHINA, Tonkin, Chapa, Massif du Fan Tre Pan, *Petelot* 4376, July, 1931, alt. about 1400 m. Massif du Tam Dao, *Petelot* 3213, 4560, April and May, 1931, alt. 1400 m.

A Symplocos-like species, allied to *Pentaphylax euryoides* Gardn. & Champ. of southeastern China, but with strictly spicate, not racemose

infructescences, normally 2 spikes in each axil. The genus is new to Indo-China, the previously known representatives being *P. euryoides* Gardn. & Champ. and *P. racemosa* Merr. which may not be distinct from *P. euryoides*, both from southeastern China, and *P. malayana* Ridl. and *P. arborea* Ridl. of the Malay Peninsula.

AQUIFOLIACEAE

Ilex macrocarpa Oliv. Hook. Ic. **18**: t. 1787. 1888.

INDO-CHINA, Tonkin, Chapa, *Petelot 4596*, September, 1931, alt. about 1500 m. Hupeh, Anhwei, Kwangsi, Kwangtung, Kweichow, and Yunnan; new to Indo-China.

CELASTRACEAE

Celastrus gemmata Loesen. Bot. Jahrb. **30**: 468. 1902; Rehd. Jour. Arnold Arb. **14**: 250. 1933.

INDO-CHINA, Tonkin, Chapa, Massif du Song Ta Van, *Petelot 5829, 5946*, August, 1930, and April, 1936, alt. about 1950 m. Shantung to Kwangtung, westward to Kweichow, Szechuan, and Yunnan in China.

Celastrus Hookeri Prain, Jour. As. Soc. Bengal **73**(2): 197. 1904; Rehd. & Wils. in Sargent, Pl. Wils. **2**: 352. 1915.

INDO-CHINA, Tonkin, Chapa, *Petelot 5936*, April, 1936, alt. 1500 m. Fukien, Kwangtung, Kweichow, Kwangsi, Szechuan, and Yunnan in China, and Khasia and Sikkim in India.

Celastrus Loeseneri Rehd. & Wils. in Sargent, Pl. Wils. **2**: 350. 1915.

INDO-CHINA, Tonkin, Chapa, Massif du Song Ta Van, *Petelot 5941*, April, 1936, a large liana, flowers greenish, alt. about 1700 m. Hupeh, Kansu, Shensi, Szechuan, and Yunnan.

Celastrus monosperma Roxb. Hort. Bengal. **18**. 1814, *nomen nudum*, Fl. Ind. **2**: 394. 1824; Rehd. & Wils. in Sargent, Pl. Wils. **2**: 357. 1915.

INDO-CHINA, Tonkin, Chapa, *Petelot 5931*, April, 1936, in open forests, alt. 1600 m. Bengal and Assam to Yunnan and Kwangtung.

Evonymus Petelotii sp. nov.

Frutex erectus, glaber, ramis atro-brunneis, teretibus vel obscure sulcato-angulatis, ultimis circiter 2 mm. diametro, internodiis 3.5–7 cm. longis; foliis chartaceis, oblongo-ovatis vel oblongo-ellipticis, utrinque subolivaceo-viridibus concoloribus, nitidis, brevissime petiolatis, 7–12 cm. longis, 4–5 cm. latis, obtusis acutis vel leviter acuminatis, basi late rotundatis vel obtusis, margine crenulato-serrulatis, dentibus parvis,

1–2 mm. remotis, plerumque breviter apiculatis; nervis primariis utrinque 6–7, gracilibus, utrinque paullo elevatis, curvatis, arcuato-anastomosantibus; petiolo circiter 2 mm. longo; cymis axillaribus, solitariis, circiter 6 cm. longis (pedunculo gracili, circiter 3 cm. longo), paucifloris, dichotomis, usque ad 4 cm. latis, ramis primariis ad 1.5 cm. longis; floribus 4-meris, circiter 8 mm. diametro, petalis integris, orbiculari-ellipticis, rotundatis, 2.5–3 mm. longis.

INDO-CHINA, Tonkin, Chapa, *A. Petelot 5942*, April, 1936, a shrub with greenish flowers growing along the borders of torrents, alt. about 1200 m.

A species that in some respects suggests *Euonymus Bockii* Loes. and doubtless as closely allied to that as to any other described species. The leaves are much thinner, while the slenderly peduncled lax cymes are very different, being much longer than in Loesener's species.

Evonymus Balansae Sprague, *Kew Bull.* 1908: 180.

Euonymus rhodacanthus Pitard, *Lecomte Fl. Gén. Indo-Chine* 1: 870. f. 108, 8. 1912 (syn. nov.).

Both species are based on material collected by Balansa at Dong-Dang, Tonkin, cited by Sprague as *Balansa 1451*; Pitard cites merely the collector, not the number. Clearly a single species is represented, Pitard having overlooked Sprague's earlier description.

Evonymus Forbesiana Loesen. *Bot. Jahrb.* 30: 457. 1902; *Rehd. Jour. Arnold Arb.* 14: 246. 1933.

INDO-CHINA, Tonkin, Bac Giang Province, between Pho Vi and Thanh Moi, *Petelot 5870*, June 5, 1935, a shrub in open forests. Kweichow, Szechuan, and Yunnan.

STAPHYLEACEAE

Turpinia montana (Blume) Kurz, *Jour. As. Soc. Bengal* 64(2): 182. 1875; *Koord. Atlas Baumart. Java* 1: t. 92. 1913; *Merr. Contr. Arnold Arb.* 8: 93. 1934, *cum syn.*

Zanthoxylum montanum Blume, *Bijdr.* 248. 1825.

Maurocenia Zollingeri O. Ktze. *Rev. Gen. Pl.* 150. 1891.

Turpinia parva Koord. & Val. *Meded. Lands Plantent.* 61: 249. 1903 (Bijdr. Boomsoort. Java 9: 249).

Turpinia gracilis Nakai, *Jour. Arnold Arb.* 5: 79. 1924.

INDO-CHINA, Annam, Mount Bana, *Clemens 3894*, May-July, 1903; Tonkin, Hoa Binh Province, Muong Thon, route from Hanoi to Hoa Binh, *Petelot 5259*, May 23, 1936.

I am unable to distinguish *Turpinia gracilis* Nakai, based on *Henry 12039*, from Yunnan, from Blume's species. *Rock 1548* from Siam is

also referable here. *Turpinia glaberrima* Merr. of Kwangtung and Hainan is doubtfully distinct. Burma, Sumatra, Java.

***Turpinia cochinchinensis* (Lour.) comb. nov.**

Triceros cochinchinensis Lour. Fl. Cochinch. 184. 1790, ed. 2, 230. 1793.

Maurocenia cochinchinensis O. Ktze. Rev. Gen. Pl. 150. 1891.

Turpinia nepalensis Wall. List no. 4277, 1830, *nomen nudum*; W. & A.

Prodr. 156. 1834; Merr. Contr. Arnold Arb. 8: 94. 1934, *cum syn.*

INDO-CHINA, Tonkin, Chapa, *Petelot 5216, 5929*, July, 1930, and April, 1935, alt. about 1500 m.; Hanoi to Hoa Binh, *Petelot 5388*, March, 1935; Annam, Mount Bana, *Clemens 3791*, May-July, 1927.

The authors of the "Flore générale de l'Indo-Chine" apparently overlooked this genus (and family), although at least three species of *Turpinia* occur in Indo-China. This form has been confused with *T. pomifera* (Roxb.) DC., a species of British India with much larger fruits, that does not occur in southeastern Asia or in Malaysia. In my extensive paper on Loureiro's species (Trans. Am. Philos. Soc. II 24(2): 246. 1935) I merely indicated that *Triceros cochinchinensis* Lour. was a *Turpinia*. I am now convinced that *Clemens 3791*, a fruiting specimen from reasonably near the probable type locality (Hue), represents Loureiro's species, for this specimen has fruits with three short horns (remains of the styles) mentioned by Loureiro, and the character whence he derived his generic name. India to southern China, and Malaysia.

***Turpinia indochinensis* sp. nov.**

Arbor glabra, circiter 10 m. alta, ramis ramulisque teretibus, ultimis circiter 3 mm. diametro, internodiis 3-7 cm. longis; foliis simplicibus, ellipticis vel obovato-ellipticis, coriaceis, 8-19 cm. longis, 4-10 cm. latis, in sicco olivaceo-brunneis, acuminatis, basi late acutis, margine subincrassato-serratis, dentibus plusminusve incurvato-apiculatis, nervis primariis utrinque 8-12, manifestis; petiolo 1.5-3 cm. longo; inflorescentiis paniculatis, terminalibus, pedunculatis, multifloris, usque ad 12 cm. longis; floribus numerosis, in ramulis ultimis plus minusve confertis, 5-6 mm. longis, pedicellis circiter 2 mm. longis, bracteolis quam pedicellis paullo brevioribus; sepalis subcoriaceis, ellipticis vel obovato-ellipticis, 3-5 mm. longis; petalis submembranaceis, anguste oblongo-obovatis vel late oblanceolatis, quam sepalis paullo brevioribus; filamentis latis, planis, petalis subaequantibus; ovario glabro, 3-loculari, stylis 3, brevibus.

INDO-CHINA, Tonkin, Massif du Tam Dao, *Petelot 3881*, November, 1930, alt. about 900 m., a tree 10 m. high with white flowers.

The striking character of this species is its simple leaves which in texture and general appearance approximate those of some forms that

are currently referred to *Turpinia pomifera* DC. and *T. nepalensis* Wall., these and their allied species, however, always having pinnate leaves.

ICACINACEAE

Gomphandra obscurinervis sp. nov.

Frutex circiter 3 m. altus, ramulis et petiolis et inflorescentiis adpresse pubescentibus, ceteroquin glabris; ramis teretibus, ramulis ultimis 1 mm. diametro; foliis lanceolatis, coriaceis, in sicco subatris vel brunneis, nitidis, 5–12 cm. longis, .7–2.5 mm. latis, acuminatis, basi acutis, nervis primariis utrinque 5–7, distantibus, curvatis, obscuris, obscure anastomosantibus, interdum obsolete, reticulis plerumque obsolete; petiolo 5–10 mm. longo; cymis axillaribus subterminalibusque, pedunculatis, trichotomis, circiter 3 cm. longis, leviter adpresse pubescentibus, pedunculo circiter 1 cm. longo; floribus 4- vel 5-meris, sessilibus, plerumque in triadibus in ramulis ultimis dispositis, calycibus cupulatis, glabris, 1.5 mm. longis latisque, truncatis, dentibus 4 vel 5, minutissimis; corolla 5 mm. longa, lobis plerumque 4, triangulari-ovatis, acutis, apice inflexo-appendiculatis; staminibus 5, filamentis 5–6 mm. longis, sursum intusque barbatis, antheris ellipsoideis, 1 mm. longis; fructibus oblongis, cylindricis, glabris, 2 cm. longis.

INDO-CHINA, Tonkin, Massif du Tam Dao, *A. Petelot 4359* (type), May, 1931, alt. 1100 m.; Chapa, *A. Petelot 4463*, September, 1932, alt. about 1600 m.

A species among the very few known from Indo-China apparently most closely allied to *Gomphandra cambodiana* Pierre. It is well characterized by its narrow, lanceolate, obscurely nerved leaves.

Platea latifolia Blume, Bijdr. 647. 1826; Ridl. Fl. Malay Penin. 1: 426. 1922.

INDO-CHINA, Tonkin, Chapa, *Petelot 1787*, April, 1925, alt. about 1500 m.; Annam, route to Haut Donai, *Poilane 20987*, Sept. 24, 1932. Java, Malay Peninsula, Hainan; the first representative of the genus to be recorded from Indo-China.

ACERACEAE

Acer decandrum Merr. Lingnan Sci. Jour. 11: 47. 1932, Merr. & Chun, Sunyatsenia 2: 269. t. 56. 1935.

INDO-CHINA, Tonkin, Tam Dao, *Petelot 5060*, October 15, 1936, a tree 5 m. high, alt. about 900 m. Hainan.

Acer Fabri Hance, Jour. Bot. 22: 76. 1884; Metcalf, Lingnan Sci. Jour. 11: 204. 1932.

INDO-CHINA, Tonkin, between Chapa and Lo Qui Ho, in deep ravines, alt. about 1600 m., *Petelot 5823*, April, 1936. Kwangtung, Kwangsi, Szechuan, and Hainan, with a variety extending to Hupeh, Kiangsi and Kweichow.

Acer Fenzelianum Hand.-Mazz. Oester. Bot. Zeitschr. **82**: 250. 1933.

The type of this was a specimen collected at Chapa by *Fenzel*. It is represented by *Petelot 5059 bis* from the same locality, August, 1931.

Acer oblongum Wall. var. **concolor** Pax in Hook. Ic. **19**: sub *t.* 1897. 1889, Pflanzenr. **8(IV. 163)**: 32. 1902.

INDO-CHINA, Tonkin, Chapa, *Petelot 5366*, Sept., 1930, in forests, alt. about 1500 m. The species from India to central China, the variety in China.

SAPINDACEAE

Allophylus macrodontus sp. nov.

Suffrutex 0.8 m. altus (fide collectoris), caulibus teretibus, perspicue lenticellatis, glabris vel subglabris, circiter 4 mm. diametro, cortice pallide brunneo; foliis longe petiolatis, 3-foliolatis, petiolo 10 cm. longo, consperse adpresse pubescente; foliolis in sicco utrinque viridibus, membranaceis, utrinque glabris vel ad costam breviter adpresse pubescentibus, oblongo-ellipticis, 16–20 cm. longis, 7–9 cm. latis, acuminatis, basi acutis, deorsum integris, in parte superiore grosse et irregulariter subundulato-dentatis, dentibus paucis, 2–3 cm. distantibus, aliquando 1.5 cm. latis, subrotundatis apiculatisque; nervis primariis utrinque circiter 12, gracilibus, perspicuis; petiolulis breviter adpresse pubescentibus; inflorescentiis axillaribus, gracilibus, simplicibus, racemosis, breviter depauperato-pubescentibus, petiolum subaequantibus; floribus pro genere inter minores, circiter 3.5 mm. diametro, breviter (1 mm.) pedicellatis, solitariis, 1–2 mm. remotis, sepalis suborbicularibus, glabris, concavis, 2 mm. longis, petalis sepala aequantibus, deorsum angustatis, sursum barbatis; filamentis glabris; ovario leviter pubescente.

INDO-CHINA, Tonkin, Sontoy Province, route to the Notre Dame rocks, *A. Petelot 5909*, October 8, 1936.

A species characterized not only by its small size for those in the trifoliolate group, the plant being less than one meter high, but also by its long-petioled, 3-foliolate, very coarsely undulate-toothed, uniformly green, membranaceous, glabrous leaflets, and by its solitary, simple, slender, few-flowered, simple racemes that are about as long as the petioles, the flowers not at all crowded, mostly 1 to 2 mm. apart and solitary, very rarely two together. After Radlkofer's arrangement of the species it belongs in the group with *Allophylus serratus* Radlk.,

A. fuscus Radlk., *A. sootepensis* Craib, and *A. viridis* Radlk., distinguished from all by numerous characters, the most evident one being perhaps the coarsely repand-toothed leaves.

***Allophylus Petelotii* sp. nov.**

Frutex scandens, partibus junioribus inflorescentiisque exceptis glaber, ramis teretibus, glabris, subgriseis, ramulis 2 mm. diametro, consperse adpresseque pubescentibus; foliis 1-foliolatis, late oblanceolatis, chartaceis vel submembranaceis, 15–19 cm. longis, 4–6 cm. latis, supra olivaceis, glabris, nitidis, subtus pallidioribus, obscure pubescentibus vel glabrescentibus, deorsum integris, sursum distanter denticulatis, basi acutis, apice acuminatis, nervis primariis utrinque circiter 10, curvatis, anastomosantibus, distinctis; petiolo consperse pubescente, 1 cm. longo; inflorescentiis axillaribus, solitariis, simpliciter racemosis, folia subaequantibus, breviter consperse pubescentibus, pedicellis circiter 1.5 mm. longis, glabris; floribus albidis, 2.5 mm. diametro, sepalis binis exterioribus orbiculari-ovatis, obtusis, leviter pubescentibus, 1 mm. diametro, binis interioribus petaloideis, orbiculari-obovatis, concavis, 2 mm. diametro; petalis 4, membranaceis, leviter pubescentibus, 1.5–1.8 mm. longis, obtusis, squamis crassis, leviter pubescentibus, 1 mm. longis; filamentis glabris, 2 mm. longis, ovario 2-loculari, leviter pubescente.

INDO-CHINA, Tonkin, Massif du Tam Dao, *A. Petelot* 4360 (type), May, 1931, "liane à fleurs blanches." Also represented by *Petelot* 4814 from Pho Vi, Province of Bac Giang, May, 1933, a shrub 1.5 m. high.

A species unrelated to any of those recorded from Indo-China, characterized by its simple leaves and racemes, the latter about equalling the former in length. It resembles *Allophylus samarensis* Merr. of the Philippines.

***Allophylus viridis* Radlk.** Sitzungsber. Math.-Phys. Kl. Bayer. Akad. Wiss. **38**: 229. 1909, Pflanzenr. **98b (IV-165)**: 564. 1932.

INDO-CHINA, Tonkin, Cho Ganh, *Petelot* 1237, September, 1923, on limestone hills. Hainan; the species is new to Indo-China.

BRETSCHNEIDERACEAE

***Bretschneidera sinensis* Hemsl.** Hook. Ic. **28**: t. 2708. 1901; Chun, Sunyatsenia **1**: 265. 1934.

INDO-CHINA, Tonkin, Chapa, *Petelot* 5830, 5831, April, 1936, in forests, alt. about 1500 m. Hunan, Kweichow, Kwangtung, and Yunnan. A striking addition to the Indo-Chinese flora, this sole representative of the family previously known only from China.

SABIACEAE

Meliosma Clemensiorum sp. nov. (§ *Pinnatae*)

Arbor parva; ramis teretibus, lenticellatis, glabris, pallidis, ramulis ultimis leviter pubescentibus, circiter 4 mm. diametro; foliis pinnatis, circiter 45 cm. longis, petiolis breviter adpresse pubescentibus, foliolis plerumque 11, integris, chartaceis vel subcoriaceis, oblongo-ellipticis vel oblongis, 9–17 cm. longis, 4–7 cm. latis, superioribus majoribus, basi acutis, apice breviter acuminatis, supra olivaceis, glabris vel ad costam breviter pubescentibus, subtus pallidioribus, ad costam nervosque breviter adpresse pubescentibus, nervis primariis utrinque in foliis inferioribus circiter 8, in foliis superioribus circiter 15, subtus manifestis, elevatis, arcuato-anastomosantibus; paniculis saltem 15 cm. longis, pedunculatis, breviter brunneo-pubescentibus, ramis primariis paucis, inferioribus ad 10 cm. longis, floribus sessilibus, in ramulis ultimis spicatum dispositis, haud confertis, spicis 1–2 cm. longis, paucifloris; bracteis bracteolisque ovatis, acutis vel acuminatis, pubescentibus, 0.5 mm. longis; sepalis ovatis, glabris vel subglabris; ovario subgloboso, pubescente, circiter 1 mm. diametro, stylis glabris, ovarium aequantibus.

INDO-CHINA, Annam, Mount Bana, *J. & M. S. Clemens 3775*, May–July, 1927, a small tree in forests, flowers dull yellow.

This is the first pinnate-leaved species of the genus to be recorded from Indo-China. Its alliance seems manifestly to be with *Meliosma Arnottiana* Walp., from which it differs not only in its indumentum but also in its spicately and rather distantly arranged flowers, those of Walpers' species being glomerate on the ultimate branchlets.

Meliosma dolichobotrys sp. nov. (§ *Simplices*).

Arbor parva 6–8 m. alta, ramulis novellis inflorescentiisque exceptis glabra vel subglabra, ramis teretibus, ultimis circiter 3 mm. diametro, lenticellatis, obscure breviter pubescentibus; foliis late oblongo-oblanco-latis vel oblongo-obovatis, chartaceis, integerrimis, apice acutis vel rotundatis, basi acutis, utrinque manifeste et dense sed non profunde subfoveolatis, reticulis ultimis vix 0.3 mm. diametro, supra olivaceis, nitidis, subtus pallidioribus, utrinque ad costam nervosque obscure consperse pubescentibus, ceteroquin glabris, 9–16 cm. longis, 4–8 cm. latis, nervis primariis utrinque 12–18, subtus elevatis, manifestis, sub marginem curvato-anastomosantibus; petiolo 2.5–3.5 cm. longo, consperse adpresseque breviter pubescente; paniculis terminalibus, solitariis, erectis, longe pedunculatis atque exsertis, pedunculo circiter 10 cm. longo, paniculis diffusis, multifloris, circiter 20 cm. longis, ramis primariis paucis, patulis, 12–15 cm. longis, perspicue pubescentibus; floribus

sessilibus, numerosis, parvis, in ramulis ultimis dense spicatum dispositis, vix glomerulos formantibus; bracteis lanceolatis, acuminatis, pubescentibus, bracteolis minoribus; sepalis ovatis, margine ciliatis, ceteroquin glabris; ovario glabro.

INDO-CHINA, Tonkin, Thai Nguyen Province, between Thai Nguyen and Phan Mê, *A. Petelot* 4801, May, 1933, in open forests.

In some respects this species resembles *Meliosma Fordii* Hemsl. but differs remarkably in its long-peduncled, exerted panicles and its rounded, obtuse, or somewhat acute but not acuminate leaves which are minutely and shallowly subfoveolate on both surfaces, the ultimate reticulations being about 0.3 mm. in diameter.

Meliosma sterrophylla sp. nov. (§ *Simplices*).

Arbor 7–8 m. alta, inflorescentiis leviter pubescentibus exceptis glabra, ramis ramulisque teretibus, rigidis, ultimis 3 mm. diametro; foliis simplicibus, integerrimis, rigidis, coriaceis, ellipticis vel obovato-ellipticis, longe petiolatis, 10–15 cm. longis, 4.5–8 cm. latis, breviter obtuse acuminatis, basi acutis vel decurrenti-acuminatis, in sicco supra laevibus, subcastaneis, subtus pallidioribus, brunneis, utrinque glaberrimis; nervis primariis utrinque circiter 12, supra leviter impressis, subtus valde elevatis, perspicuis, arcuato-anastomosantibus, reticulis primariis elevatis, perspicuis, undulato-subparallelis; petiolo 2.5–4 cm. longo, glabro; paniculis terminalibus et in axillis superioribus, circiter 15 cm. longis, rigidis, ramosis, consperse breviter brunneo-pubescentibus, floribus in ramulis ultimis subspicatum dispositis, haud glomeratis, sessilibus, bracteis ovatis, leviter pubescentibus, 1.5 mm. longis; sepalis interioribus ovatis, rotundatis vel obtusis, glabris vel leviter pubescentibus, circiter 1 mm. longis; ovario globoso, glaberrimo, haud 1 mm. longo, stylis aequilongis.

INDO-CHINA, Tonkin, Massif du Fan Tsi Pan, near Chapa, *A. Petelot* 4532, alt. about 1400 m., February, 1932.

Among the simple leaved species *Meliosma sterrophylla* Merr. is distinguished by its rigid glabrous branches and branchlets, its stiff, entire, prominently nerved, long-petioled, glabrous leaves, its stiff panicles which are only slightly pubescent, and its glabrous ovaries, the flowers spicately arranged on the ultimate branchlets, not in glomerules. Its alliance is with *M. Tsangtakii* Merr. of Hainan, but that species has distinctly pubescent leaves.

Meliosma Petelotii sp. nov. (§ *Simplices*).

Species *M. rigidae* S. et Z. affinis, differt areolis ultimis in foliis subtus planis, haud subfoveolatis, foliis glabris vel parcissime pubescentibus.

Arbor 5–6 m. alta, ramis ramulisque teretibus, breviter subcinereo-pubescentibus vel puberulis, ultimis 3–4 mm. diametro; foliis lanceolatis vel oblanceolatis, coriaceis, 15–24 cm. longis, 2.5–7.5 cm. latis, distanter conspicue serratis, dentibus acutis vel acuminatis, 1–2 cm. remotis, margine deorsum integris, apice acuminatis, basi cuneatis, supra costa impressa puberula excepta glabris, olivaceo-brunneis, subtus pallidioribus, glabris vel ad costam nervosque obscure breviter pubescentibus; nervis primariis utrinque 16–22, subtus valde elevatis, perspicuis, sub marginem arcuato-confluentibus, reticulis ultimis manifestis, laxis; petiolo 1.5–2 cm. longo, puberulo; paniculis angustis, solitariis, terminalibus, dense breviter adpresse subferrugineo-pubescentibus, breviter pedunculatis, circiter 15 cm. longis, ramis primariis circiter 3 cm. longis, multifloris, floribus sessilibus, in ramulis ultimis glomeratim confertis; bracteis lanceolatis, acuminatis, 1.5 mm. longis, pubescentibus, bracteolis multo minoribus; sepalis late ovatis, concavis, rotundatis vel obtusis, glabris vel margine minute ciliatis, 1.5 mm. longis; ovario ovoideo, 1 mm. longo, glabro, stylis aequilongis.

INDO-CHINA, Tonkin, near Chapa, *A. Petelot* 3556 (type), 5862, August, 1929, and July, 1935, in open forests, alt. about 1500 m.

Both of these specimens were originally referred to *Meliosma simplicifolia* (Roxb.) Walp., but there were so many manifest differences that a more critical study was made of the available material. The conclusion is that a species very closely allied to the Japanese *Meliosma rigida* Sieb. & Zucc. is represented, there being, however, great differences in the indumentum between this Indo-Chinese form and Japanese material and in the details of the reticulations. In the latter the ultimate reticulations on the lower surfaces of the leaves are more or less foveolate, in the present one the areolae are smooth, not at all impressed.

Meliosma dunicola W. W. Sm. Notes Bot. Gard. Edinb. **13**: 170. 1921.

INDO-CHINA, Tonkin, Chapa, *Petelot* 5863, April, 1936, alt. about 1500 m. Yunnan, Hainan. *Petelot* 3944 from the same locality, distributed as *M. simplicifolia* Roxb., apparently represents the same species.

Meliosma Fordii Hemsl. Jour. Linn. Soc. Bot. **23**: 144. 1886.

INDO-CHINA, Tonkin, Chapa, *Petelot* 5453, April, 1935. Kwangsi, Kwangtung, and Hainan; new to the Indo-China flora.

RHAMNACEAE

Rhamnus griseus sp. nov.

Arbor inermis, circiter 10 m. alta; foliis subtus dense minuteque

pallide griseo- ad subcinereo-puberulis, ramis glabris, teretibus, ramulis breviter pubescentibus; foliis alternis, discoloribus, supra olivaceis, glabris, nitidis, subtus pallide cinereis, chartaceis vel subcoriaceis, oblongo-lanceolatis vel oblongis, 6–15 cm. longis, 1.5–5 cm. latis, tenuiter acuteque acuminatis, basi late acutis vel subrotundatis, integerrimis; nervis primariis utrinque 10–12, gracilibus, distinctis, ad marginem curvatis, obscure anastomosantibus; petiolo 1–2 cm. longo, pubescente; infructescentiis axillaribus, fructibus globoso-obovoideis, glabris, 5 mm. longis, fasciculatis, raro solitariis, vel depauperato-umbellatis, pedunculo usque 5–7 mm. longis, calycibus persistentibus puberulis, disciformibus, 2 mm. diametro.

INDO-CHINA, Tonkin, Chapa, *A. Petelot 4371* (type), July, 1931, 4568, August, 1929, alt. 1500 to 1600 m., fruits red.

A species strongly characterized by its leaves being glabrous olivaceous and shining above, and pale cinereous or pale gray and densely puberulent beneath. The fruits are axillary, or in pairs, or up to 5 in fascicles or in shortly peduncled umbels.

Ventilago leiocarpa Benth. Jour. Linn. Soc. Bot. **5**: 77. 1860.

INDO-CHINA, Tonkin, Thai Nguyen Province, Thai Nguyen to Phan Mê, and Thai Nguyen to Bac Kon, *Petelot 4690, 4807*, April and May, 1933. Formosa, Kwangtung, Kwangsi, and Hainan. The Malay Peninsula form referred here by some authors is *Ventilago malaccensis* Ridl.

VITACEAE

Ampelopsis cantoniensis (H. & A.) K. Koch, var. **grossedentata** Hand.-Maz. Anz. Akad. Wiss. Wien **59**: 104. 1922.

INDO-CHINA, Tonkin, Chapa, *Petelot 5818*, July, 1937, a liana 4 to 5 m. long, alt. 1500 m. Fukien, Kwangtung, Kiangsi, and Kweichow. *Vitis multijugata* Lév. is a synonym.

ELAEOCARPACEAE

Elaeocarpus Griffithii (Wight) A. Gray, Wilkes U. S. Expl. Exped. Bot. **1**: 203. 1854; Kurz Jour. As. Soc. Bengal **39**(2): 68. 1870; Mast. in Hook. f. Fl. Brit. Ind. **1**: 408. 1874; Gagnep. in Lecomte Fl. Gén. Indo-Chine **1**: 570. 1911.

Elaeocarpus argyroides Hance, Jour. Bot. **15**: 330. 1877 (syn. nov.).

The type of Hance's species was a specimen collected in Cambodia by Pierre, the species not having been accounted for by Gagnepain in his treatment of the Indo-Chinese species; unfortunately Hance cited neither the collector nor the locality in describing his species. The reduction

has been made from Hance's description and an inspection of an excellent photograph of his type kindly supplied by Dr. J. Ramsbottom of the British Museum, Natural History.

Practically all modern authors, including King, Ridley, Gagnepain, and others, credit the binomial *Elaeocarpus Griffithii* to Masters, who independently published it by transfer in Hook. f. Fl. Brit. Ind. 1: 408. 1874. However, Kurz had made the same transfer four years earlier, Jour. As. Soc. Bengal 39(2): 68. 1870, and both Kurz and Masters were long antedated by A. Gray. The three botanists independently based the binomial under *Elaeocarpus* on *Monoceras Griffithii* Wight, Ill. 1: 84. 1838, which is earlier than *Monoceras Griffithii* K. Muell. Annot. Elaeocarp. 12. 1849, the latter being a synonym of *E. paniculatus* Wall. The species occurs in Burma, Siam, Indo-China, the Malay Peninsula, Sumatra, and Borneo.

***Elaeocarpus griseo-puberulus* sp. nov. (§ *Dicera*).**

Arbor circiter 15 m. alta, partibus junioribus et inflorescentiis et foliis subtus perspicue cinereo- vel griseo-puberulis; ramis teretibus, glabris, lenticellatis, circiter 4 mm. diametro, novellis dense puberulis; foliis oblongis, chartaceis vel subcoriaceis, 9–11 cm. longis, 3–4 cm. latis, leviter crenato-serratis dentibus subapiculatis, supra glabris, suboliva-ceis, subtus pallidioribus, dense adpresse puberulis, apice breviter acuminatis, basi acutis; nervis primariis utrinque 9–12, subtus perspicuis, elevatis, curvato-adscendentibus, obscure arcuato-anastamosantibus, reticulis haud perspicuis; petiolo puberulo, circiter 2 cm. longo; racemis numerosis in axillis defoliatis, puberulis, 6–7 cm. longis; floribus numerosis, 5-meris, pedicellis circiter 4 mm. longis; sepalis anguste oblongis, acutis, puberulis, 4 mm. longis; petalis 6 mm. longis, deorsum angustatis, laciniatis laciniis 8–9 linearibus 2–2.5 mm. longis, extus glabris, intus deorsum obscure pubescentibus, margine leviter ciliatis; staminibus circiter 15, filamentis brevibus, antheris oblongis, scabridulis, loculis subaequalibus, 1.5–1.8 mm. longis, obtusis; ovario ovoideo, dense cinereo-pubescente, stylis circiter 4 mm. longis, deorsum consperse subadpresse pubescentibus, sursum glabris; disco dense pubescente, annulato, circiter 1.5 mm. diametro, obscure crenulato.

INDO-CHINA, Tonkin, Chapa, *A. Petelot* 3283, September, 1928, in forests, alt. about 1500 m.

A species which I have not been able to refer to any described species, characterized by its short, usually dense, appressed, cinereous or subcinereous, puberulent indumentum, characteristic of the tips of the branchlets, inflorescences, petioles, and the lower surfaces of the leaves.

TILIACEAE

Tilia mesembrinos sp. nov.

Arbor, ramis ramulisque teretibus, glaberrimis, ultimis circiter 2 mm. diametro; foliis oblique inaequilateraliterque ovatis, circiter 10 cm. longis et 6 cm. latis, supra subolivaceis, glabris vel in nervis basalibus breviter decidue stellato-pubescentibus, subtus densissime stellato-pubescentibus pilis albidis vel in nervis pallide brunneis, apice acutis, basi latissime inaequilateraliter acutis vel oblique truncatis, haud cordatis, recto- vel curvato-dentatis dentibus 0.5–1 mm. longis 2–5 mm. remotis, subpatulis, versus basim integris; nervis primariis utrinque circiter 7, rectis, adscendentibus, subtus manifestis; petiolo 3–3.5 cm. longo, glabro vel sursum stellato-pubescente; cymis ut videtur 3-floris, sub fructu cum bracteis circiter 14 cm. longis, pedunculis glabris, circiter 3.5 cm. longis, pedicellis breviter stellato-pubescentibus; bracteis sessilibus vel brevissime (1–2 mm.) crasse stipitatis, oblanceolatis, obtusis vel rotundatis, 10–14 cm. longis, sursum circiter 2 cm. latis, deorsum plus minusve angustatis, basi 6–8 mm. latis, obtusis, in sicco pallidis, utrinque breviter stellato-pubescentibus; fructibus ovoideis vel subellipsoideis, circiter 1 cm. longis, breviter apiculatis, subverruculosis et dense breviter pallide pubescentibus.

INDO-CHINA, Tonkin, Massif du Song Ta Van, Chapa, *A. Petelot* 5808, August, 1936.

This is the first representative of the genus to be recorded from Indo-China, the specific name being selected in reference to its rather unusual southern range as compared to most other species of the genus. It is well characterized by its entire leaf-bases being very broadly acute to obliquely truncate, not at all cordate, and by the very dense whitish indumentum covering the entire lower surface. In some respects it suggests *Tilia mofungensis* Chun & Wang of Kwangtung Province, China, but that species has somewhat cordate leaf-bases and a very different indumentum.

STERCULIACEAE

Craigia W. W. Smith & Evans

Craigia yunnanensis W. W. Sm. & W. E. Evans Trans. Proc. Bot. Soc. Edinb. 28: 69. *t. 1*. 1921.

INDO-CHINA, Tonkin, Chapa, *Petelot* 3810, August, 1930, a tree 15 to 20 m. high, alt. about 1500 m. A monotypic genus previously known only from Yunnan.

Sterculia scandens Hemsl. Kew Bull. 1908: 179.

INDO-CHINA, Tonkin, near Laokai, *E. H. Wilson* 2796 (*Henry* 13643).

This species was not accounted for by Gagnepain in his treatment of the Indo-China species in 1910. The specimen in the herbarium of the New York Botanical Garden bears a Yunnan label, but attached to it is Wilson's original note, reading "2796 climber, fls. salmon-pink, ravine, Namthi route, 1 1-2 miles from Laokai 8/3." On the occasion of Wilson's visit to Henry in Yunnan it is apparent that he presented this material to the latter who gave it a number in his own series. It is suspected that the field note is erroneous in reference to the plant being scandent, for the herbarium material that I have seen shows every indication of its having been an erect plant; and the scandent habit is not that of *Sterculia*: Yet the specimen represents a true *Sterculia*. Hemslley's citation is "Tonking, Laokai, *E. H. Wilson*, 2796; *A. Henry*, 13643, collected by Mr. Wilson."

Dr. A. Petelot informs me that Laokai or Laokay is situated near the Yunnan border, on the railroad line from Hanoi to Yunnanfu, at the confluence of the Red and Namthi Rivers.

Reevesia pubescens Masters in Hook. f. *Fl. Brit. Ind.* 1: 364. 1874; Rehder, *Jour. Arnold Arb.* 15: 96. 1934, cum syn.

INDO-CHINA, Tonkin, Chapa, *Petelot* 6026, August, 1933, alt. about 1500 m. India to Yunnan, Kweichow and Kwangsi, southward to Java.

ACTINIDIACEAE

Actinidia indochinensis sp. nov.

Frutex scandens, subglaber; ramis glabris, ramulis junioribus subdecidue breviter granulato-puberulis; foliis ovatis vel elliptico-ovatis, utrinque subaequaliter angustatis, apice breviter acute acuminatis, basi acutis, chartaceis vel submembranaceis, 5-7 cm. longis, 2-4 cm. latis, in sicco olivaceo-viridibus, utrinque subconcoloribus, supra glabris, subtus secus costam nervosque obscure granulato-puberulis, margine infra medium integris, sursum distanter apiculato-serrulatis, nervis primariis utrinque 4-6, gracilibus, manifestis; petiolo 1-2.5 cm. longo, primo granuloso-puberulo demum glabro vel subglabro; inflorescentiis breviter granuloso-puberulis, 1-3-floris, petiolum subaequantibus; floribus 5-meris, circiter 2 cm. diametro; sepalis ovatis, obtusis, extus leviter granuloso-puberulis, membranaceis, 4-5 mm. longis; petalis albidis, obovatis, rotundatis, circiter 1 cm. longis et 7 mm. latis; staminibus circiter 30, 1-seriatis, filamentis 3-4 mm. longis, antheris flavidis, oblongo-ovatis, 1.5 mm. longis; ovario subgloboso, dense breviter pubescente, stylis circiter 25, filamenta subaequantibus.

INDO-CHINA, Tonkin, Chapa, *A. Petelot* 5938 (type), 5940, April,

1936, a liana with white flowers in open forests at 1500–1600 m. altitude.

A species clearly in the alliance with *Actinidia callosa* Lindl. and the second representative of the genus to be recorded from Indo-China. Perhaps Dunn would have placed this under his concept of Lindley's species, of which he recognizes six varieties (Jour. Linn. Soc. Bot. **39**: 405–407. 1911), but particularly in the granular indumentum on the younger parts, inflorescences, and along the midrib and nerves on the lower surfaces of its leaves, it does not agree with any of the forms that he very briefly defined.

Saurauia Oldhami Hemsl. Jour. Linn. Soc. Bot. **23**: 79. 1886.

INDO-CHINA, Tonkin, Cho Ganh, *Petelot 820*, January, 1923; Massif du Tam Dao, *Petelot 4448*, December, 1930. Formosa.

I can see no reason for distinguishing this Indo-China form from Hemsley's Formosan species; new to Indo-China.

THEACEAE

Hartia tonkinensis sp. nov.

FIGURE 3.

Arbor, partibus junioribus exceptis glabra (floribus ignotis), ramis glabris, ramulis junioribus teretibus, 1 mm. diametro, adpresse pilosis pilis subalbidis nitidis, alabastris densissime nitide pilosis; foliis chartaceis vel subcoriaceis, oblongo-obovatis, 3–6 cm. longis, 2–2.8 cm. latis, brevissime obtuseque acuminatis, basi subacutis, margine cartilagineo integro, supra olivaceis, glabris, subtus paullo pallidioribus, nervis primariis utrinque 10–12, subtus manifestis, arcuato-anastomosantibus, glabris vel ad costam leviter adpresse ciliatis; petiolo 5–8 mm. longo, anguste alato, praesertim supra adpresse ciliato; alabastris dense adpresse albido-pilosis; capsulis ovoideis, glabris, breviter apiculatis, 1 cm. longis, 5-valvis, sepalis persistentibus, subobovatis, rotundatis, adpresse pubescentibus, circiter 4 mm. longis, seminibus compressis, brunneis, suborbiculari-ellipticis, 2.5–4 mm. longis, plerumque anguste alatis.

INDO-CHINA, Tonkin, Massif du Tam Dao, near Chapa, *A. Petelot 3886*, November, 1930.

Characterized by its small glabrous capsules, small entire leaves, and small sepals. The petioles are less conspicuously winged than those of *H. sinensis* Dunn. The genus is new to Indo-China, the species on preliminary identification having been referred to the very closely allied genus *Stewartia*. *Hartia tonkinensis* is apparently most closely allied to *H. micrantha* Chun of Kwangtung Province, China.

In connection with this item the following adjustment is desirable in

connection with another Kwangtung species which has been described under different names in both *Hartia* and *Stewartia*:

Hartia villosa (Merr.) comb. nov.

Stewartia villosa Merr. Lingnan Sci. Jour. 7: 315. 1931.

Hartia kwangtungensis Chun, Sunyatsenia 2: 60. 1934, Ic. Pl. Sin. 5: 10. t. 210. 1937 (syn. nov.).

The species described by Chun as *Hartia kwangtungensis* in 1934 is correctly placed if one wishes to retain *Hartia* as distinct from *Stewartia*, the two genera being very closely allied. *Stewartia villosa* described from Kwangtung material by me in 1931 manifestly represents the same species.



FIGURE 3. *HARTIA TONKINENSIS* Merr. A, a fruiting branch; B, a seed; C, a capsule; D, an inflated or winged petiole.

Adinandra Millettii (Hook. & Arn.) Benth. & Hook. f. ex Hance, Jour. Bot. 16: 9. 1878.

Adinandra Drakeana Franch. Nouv. Arch. Mus. Paris II. 5: 208. 1883 (Pl. David 1: 56).

INDO-CHINA, Tonkin, Chapa, *Petelot* 3751, 4308, July, 1930, 1931,

alt. about 1500 m.; Tam Dao, near Chapa, *Petelot 3976*, May, 1931, alt. about 900 m. Anhwei, Kiangsi, Fukien, Chekiang, and Kwangtung; new to Indo-China.

GUTTIFERAE

Hypericum attenuatum Choisy Prodr. Hyperic. 47. t. 6. 1821; DC. Prodr. 1: 548. 1824.

INDO-CHINA, Tonkin, Chapa, *Petelot 3071*, July, 1927, alt. about 1500 m. Baikal region eastward and southward to Kwangtung.

Cratoxylon parvifolium Merrill sp. nov.

Frutex erectus, glaber, ramis ramulisque teretibus, ramulis ultimis gracilibus, circiter 0.5 mm. diametro; foliis ellipticis vel obovato-ellipticis, chartaceis, 1.5–2.5 cm. longis, 1–1.5 cm. latis, basi late acutis, apice late rotundatis vel obtusis, interdum abrupte brevissime apiculatis, in sicco pallide subolivaceis, subtus pallidioribus et praesertim in partibus superioribus consperse glandulosis; nervis primariis utrinque circiter 5, gracilibus, haud perspicuis, arcuato-anastomosantibus, venulis ultimis inter reticulis liberis; petiolo 3–4 mm. longo; inflorescentiis axillaribus terminalibusque, solitariis, pedunculatis, plerumque bifloris, pedunculo 5–8 mm. longo, pedicellis 3–4 mm. longis; floribus pallide rubris; sepalis ellipticis vel oblongo-ellipticis, rotundatis, 5 mm. longis, 2.5 mm. latis; petalis anguste oblongis, basi angustatis, inappendiculatis, circiter 8 mm. longis et 2.5 mm. latis; phalangibus sub fructu 8 mm. longis, filamentorum parte libera 1.5 mm. longa; capsulis late lanceolatis, 1–1.2 cm. longis, circiter 4 mm. diametro, sursum angustatis, stylis 3, brevibus, persistentibus.

INDO-CHINA, Annam, near Tourane, *J. & M. S. Clemens 3454*, May-July, 1927, a shrub on forested slopes, flowers pale red.

A species belonging in the group with *Cratoxylon ligustrinum* (Spach) Blume (*C. polyanthum* Korth.), distinguished, however, by its very much smaller, differently shaped, usually broadly rounded leaves. The lower surface of the leaves is characteristically supplied with scattered dark colored glands, these being much larger and more numerous in the upper one-third of the leaf. The tips of the ultimate veinlets are free within the rather lax and not very distinct reticulations.

FLACOURTIACEAE

Casearia Petelotii sp. nov.

Arbor parva, 7–8 m. alta, ramis ramulisque dense tomentosis, ultimis 4–5 mm. diametro; foliis coriaceis, oblongis, integris vel minute obscure

denticulatis, 20–25 cm. longis, 6–8 cm. latis, acuminatis, basi leviter cordatis, subinaequilateraliter late rotundatis, in sicco supra atris vel atro-olivaceis, nitidis, glabris vel secus costam nervosque plus minusve pubescentibus, subtus paullo pallidioribus, perspicue breviter pubescentibus, costa crassa, valde elevata, dense pubescente, nervis primariis utrinque circiter 15, subtus perspicuis, elevatis, curvato-adscendentibus, vix vel obscure anastomosantibus; petiolo crasso, dense pubescente, 1 cm. longo; floribus axillaribus, fasciculatis, breviter pedicellatis, confertis, numerosis, pubescentibus, pedicellis ad 3 mm. longis, leviter pubescentibus; floribus circiter 7 mm. diametro, sepalis ellipticis vel elliptico-ovatis, rotundatis, 3 mm. longis, extus leviter pubescentibus; filamentis 2 mm. longis, leviter pubescentibus, antheris ellipticis, 0.8 mm. longis, haud apiculatis; staminodeis oblongis, 1 mm. longis, apice barbatis; ovario consperse ciliato cum stylo 2 mm. longo.

INDO-CHINA, Tonkin, Chapa, *A. Petelot 5930*, April, 1936, in forests, alt. about 1500 m.

The alliance of this species is manifestly with *Casearia villilimba* Merr. and *C. grewiaefolia* Vent. as the latter is interpreted by Gagnepain. It impresses me as being well characterized by its unusually large, coriaceous, many-nerved leaves as well as by its unusually dense indumentum.

BEGONIACEAE

Begonia Handelii Irmscher, Anz. Akad. Wiss. Wien Math.-Nat. Kl. **58**: 24. 1921, Mitt. Inst. Bot. Hamb. **6**: 348. 1927; Hand.-Mazz. Symb. Sin. **7**: 385. 1931.

INDO-CHINA, Tonkin, Phomoi, near Laokay, near the Yunnan border, *Handel-Mazzetti 12*.

We have seen no specimens of this species and do not know whether or not the same form may have been treated by Gagnepain, Lecomte, Fl. Gén. Indo-Chine **2**: 1095–1120. 1921, under some other name. At any rate Irmscher's species was based on Indo-Chinese material. The original description is repeated in the 1927 and 1931 references.

LYTHRACEAE

Lagerstroemia calyculata Kurz in Jour. As. Soc. Bengal **41**(2): 307. 1872; Craib, Fl. Siam. Enum. **1**: 719. 1931.

Lagerstroemia angustifolia Pierre ex Laness. Pl. Util. Colon. Fr. 323. 1886, *nomen*; Gagnep. Not. Syst. **3**: 355. 1918, *descr.*, Lecomte Fl. Gén. Indo-Chine **2**: 965. *f. 103*. 1921.

INDO-CHINA, southern Annam, Dalat, *Squires 820*, April, 1932. After comparing a series of Indo-Chinese specimens, including *Pierre 4993*,

Bejeaud 698, and *Robert 14* with Siamese material, I agree with Craib that Pierre's species is identical with the older *Lagerstroemia calyculata* Kurz. Indo-China, Siam and Burma.

NYSSACEAE

Nyssa sinensis Oliv. Hook. Ic. **20**: t. 1964. 1891; Wang. Pflanzenreich **41 (IV-220a)**: 10. 1910.

INDO-CHINA, Tonkin, Chapa, *Petelot 4236*, July, 1931, alt. 1600 m. Kiangsu, Kiangsi, Hupeh, Anhwei, Kwangtung, Kwangsi, Kweichow, Szechuan and Yunnan; new to Indo-China.

MELASTOMATACEAE

Memecylon confertiflorum sp. nov. (§ *Eumemecylon*).

Frutex 3–4.5 m. altus, glaber, ramis ramulisque teretibus, ramulis ultimis circiter 1 mm. diametro; foliis crasse coriaceis, ellipticis vel elliptico-ovatis, 5–9 cm. longis, 3–5 cm. latis, nitidis, apice obtusis, raro leviter retusis, basi acutis vel rotundatis, supra viridibus, subtus brunneo-olivaceis, costa supra impressa, subtus valde perspicua elevata, nervis primariis utrinque circiter 7, gracilibus, haud vel obscurissime anastomosantibus, inconspicuis, saepe obsoletis vel subobsoletis; petiolo 4–8 mm. longo; inflorescentiis axillaribus, multifloris, densis, subglobosis, circiter 1.5 cm. diametro, e cymis vel racemis multis brevibus fasciculatis paucifloris compositis; floribus pedicellatis, 4-meris, lilacinis, calycibus circiter 2 mm. longis, tubo deorsum 1 mm. diametro, sursum ampliato, 2 mm. lato, breviter 4-denticulato; petalis oblongo-lanceolatis, acuminatis, crassis, 3 mm. longis; filamentis 8, 3 mm. longis; bracteolis minutis, basilaribus.

INDO-CHINA, southern Annam, near Dalat, *Squires 787*, May 6, 1932, in forests.

A species characterized by its terete branchlets, very coriaceous obscurely nerved leaves, dense globose axillary inflorescences, these composed of numerous short few-flowered racemes or depauperate cymes, and its thick acuminate petals, which with the filaments are about 3 mm. long. Its alliance is with *Memecylon laevigatum* Blume and *M. Harmandii* Guill.

ARALIACEAE

Dendropanax venosus sp. nov.

Frutex glaber, circiter 2 m. altus, ramulis ultimis 2 mm. diametro; foliis coriaceis, in sicco olivaceis vel olivaceo-brunneis, oblongis vel late oblongo-oblancheolatis, 6–16 cm. longis, 1.5–4 cm. latis, acutis vel

acuminatis, basi acutis, 3-nerviis, margine leviter revoluta, in foliis minoribus integerrimo, in majoribus deorsum integro, sursum distanter acuminato-serrato, dentibus plus minusve incurvatis, circiter 1 mm. longis, inter se 0.5–2 cm. distantibus; nervis primariis, basalibus exceptis, utrinque 7–11, in utraque pagina elevatis, subtus valde perspicuis, arcuato-anastomosantibus, secundariis minus manifestis alternantibus, reticulis primariis sublaxis, leviter elevatis; petiolo 1.5–5 cm. longo; inflorescentiis umbellatis, terminalibus, solitariis, pedunculo crasso, circiter 8 mm. diam.; fructibus paucis (circiter 6–8), ovoideis, circiter 8 mm. longis, 5-locellatis, leviter sulcatis, dentibus persistentibus 5, triangularibus, acutis, 1 mm. longis; stylis 5, subliberis, crassis, patulis vel recurvatis, saltem 1 mm. longis.

INDO-CHINA, Annam, Mount Bana, *J. and M. S. Clemens 4401*, May–July, 1927, fairly frequent near the summit of the mountain.

This differs from the Hainan *Dendropanax oligodontus* Merr. & Chun in its coriaceous, more prominently nerved leaves and particularly in its free or nearly free spreading or recurved styles, the style of *D. oligodontus* being simple and columnar. ***Dendropanax Chevalieri*** (Viguier) comb. nov. (*Gilibertia Chevalieri* Viguier in Lecomte, *Fl. Gén. Indo-Chine* 2: 1181. *f. 141*. 1923), the only other species of the genus hitherto recorded from Indo-China, has the free styles of the present species but its leaves are entire, and apparently with much fewer primary lateral nerves. *Gilibertia* Ruiz & Pavon is invalidated by the earlier *Gilibertia* Gmelin, *Dendropanax* Decne. & Planch. being the next older name. *Textoria* Miquel, based on a Japanese species, is apparently not generically distinct from the American forms.

ERICACEAE

Agapetes cauliflora sp. nov.

Suffrutex ramosus usque ad 30 cm. altus; caulibus deorsum glabris, circiter 4 mm. diametro, sursum plus minusve patule setosis, circiter 2 mm. diametro, ramulis ultimis dense brunneo-setosis, pilis patulis, usque ad 2 mm. longis, plerumque capitato-glandulosis; foliis in ramulis ultimis plus minusve confertis, coriaceis vel subcoriaceis, sessilibus, integris, oblongo-ellipticis, 4–6 cm. longis, 1.5–2.5 cm. latis, acutis vel obscure acuminatis, basi subacutis vel obtusis, nervis lateralibus utrinque 5–7, gracilibus, in utraque pagina leviter elevatis, haud perspicuis, arcuato-anastomosantibus; floribus solitariis vel binis trinisve, in axillis defoliatis longe infra folia, circiter 2.5 cm. longis, pedicellis 5–6 mm. longis, pilis subflaccidis patulis 1–2 mm. longis subcapitato-glandulosis vestitis; calycibus circiter 6 mm. longis, tubo 4 mm. dia-

metro, lobis anguste ovatis, acutis vel acuminatis, 2 mm. longis, patule hirsutis; corolla circiter 2.5 cm. longa, tubo sursum leviter ampliato, extus patule hirsuto, lobis ovatis, obtusis, circiter 3 mm. longis; staminibus 10, filamentis leviter pubescentibus, albidis, 1 cm. longis; antheris 6 mm. longis, basi rotundatis, apice in tubum 3–3.5 mm. longum productum, calcaribus leviter curvatis, circiter 1.5 mm. longis; ovario glabro.

INDO-CHINA, Tonkin, Massif du Song Ta Van, Chapa, *A. Petelot 5947*, August, 1936, on calcareous rocks at the base of a tree, alt. about 1900 m.

Those parts of the stems and branches more or less covered with debris bear rather numerous roots, while attached to the stem is an irregularly ovoid woody growth resembling the underground thickened parts of certain epiphytic or semi-epiphytic Melastomataceae. The branching is largely beneath the covering debris, the tips of the branches protruding and bearing the apical leaves and the lateral flowers. The species seems to be allied to *Agapetes oblonga* Craib of Yunnan, differing in its leaves being crowded at the very tips of the branchlets, in its lateral not axillary flowers, which are hirsute, the spreading hairs on the pedicels, calyx and corolla being more or less capitate-glandular.

Vaccinium chapaense sp. nov.

Frutex erectus, multiramis, ramis glabris, rigidis, ramulis circiter 1 mm. diametro, glabris vel novellis leviter pubescentibus; foliis numerosis, parvis, coriaceis, rigidis, nitidis, obovatis, 1–1.4 cm. longis, 8–9 mm. latis, obtusis vel rotundatis, basi acutis, deorsum integris, sursum manifeste crenatis, crenulis utrinque plerumque 3, nervis primariis utrinque 3 vel 4, supra leviter impressis, subtus subelevatis, petiolo 1 mm. longo, glabro; infructescentiis terminalibus, subracemoso-spicatis vel fructibus solitariis, rhachibus subangulatis, glabris, ad 8 mm. longis; fructibus immaturis circiter 4 mm. diametro, subsessilibus vel brevissime pedicellatis, circiter 8-locellatis, subgloboso-obovoideis, seminibus paucis, bracteis binis submembranaceis oblanceolatis vel obovatis glabris 5–6 mm. longis ut videtur deciduis suffultis; calycis dentibus 5, parvis, late ovatis, obtusis vel subacutis, subinflexis.

INDO-CHINA, Tonkin, Chapa, Col du Lo Qui Ho, *A. Petelot 3896*, August, 1933, alt. about 2000 m.

A species characterized by its small, obovate, coriaceous, distinctly nerved and somewhat reticulate, rather conspicuously crenate leaves, usually three crenules on each side in the upper one-half, the lower half of the leaves with entire margins. It does not appear to be closely

allied to any of the sixteen species credited to Indo-China by Dop. Its general alliance seems to be with *Vaccinium Nummularia* Hook. f. & Th. of Sikkim and Bhotan. Type, herb. N. Y. Bot. Garden, isotype herb. Arnold Arboretum.

MYRSINACEAE

Embelia Henryi Walker, Jour. Washington Acad. Sci. **27**: 200. f. 3. 1937.

INDO-CHINA, Tonkin, Chapa, *Petelot* 3827, 3599, August, 1930, and September, 1929, alt. about 1700 m. Yunnan.

Rapanea yunnanensis Mez, Pflanzenr. **9 (IV. 236)**: 358. f. 60. 1902.

INDO-CHINA, Tonkin, Chapa, *Petelot* 7950, April, 1936, in open forests at 1500 m. alt. Yunnan.

PRIMULACEAE

Lysimachia Pierrei Petitm. Bull. Acad. Int. Géogr. Bot. **18**: 337. 1908.

The type of this species was indicated by Petitmengin as preserved in the herbarium of the Paris Museum, and it is hence curious that Bonati failed to account for the species in his treatment of the Indo-Chinese species (Lecomte, Fl. Gén. Indo-Chine **3**: 758–764. 1930). It was based on an Indo-Chinese specimen collected by Pierre "Hab. in sabulosis ad Kampot Cambodiae (L. Pierre, 4. 1874)." From Petitmengin's description it should fall very near the form Bonati described as *Lysimachia peduncularis* Wall.; Petitmengin compares it with *L. ramosa* Wall., *L. floribunda* Z. & M., and *L. callipes* Hemsl.

Lysimachia ramosa Wall. List no. 1490. 1829, *nomen nudum*; Duby in DC. Prodr. **8**: 65. 1844; Pax & Knuth, Pflanzenr. **22 (IV. 237)**: 271. f. 57, A-C. 1905.

INDO-CHINA, Tonkin, Lo Qui Ho, near Chapa, *Petelot* 4763, August, 1933, alt. about 2000 m. Eastern Himalayan region and the Khasia Mountains, Burma, and Yunnan.

The Philippine form referred here by Pax & Knuth is *Lysimachia fragrans* Hayata; the Javan form placed here probably does not represent Wallich's species.

Lysimachia Petelotii sp. nov. (§ *Alternifoliae*).

Herba glabra, caulibus procumbentibus, ad nodos radicanibus, ramis paucis, 10–25 cm. altis, erectis, sursum folia 3 vel 4 bene alternantes gerentibus; foliis chartaceis, integris, ellipticis vel elliptico-ovatis, 5–13 cm. longis, 3–7 cm. latis, acutis vel brevissime apiculato-

acuminatis, basi acutis, nervis primariis utrinque circiter 6, subtus elevatis, perspicuis, petiolo crasso, 2–3 mm. longo; floribus flavidis, axillaribus, solitariis, pedicellis filiformibus, 4–5 cm. longis; calycibus fere ad basin 5-partitis, sepalis oblongo-ovatis vel ovato-lanceolatis, manifeste acuminatis, 2–4 mm. longis; corolla flavida, campanulato-subrotata, profunde 5-partita, lobis oblongo-ellipticis, usque ad 1.3 cm. longis, acutis vel subobtusis; capsulis ignotis.

INDO-CHINA, Tonkin, Chapa, *A. Petelot 5444*, April, 1935, in open forests on calcareous formations, alt. about 1500 m., type in the Gray Herbarium.

A remarkable species, when dry with a very persistent and pronounced odor of fenugreek (*Trigonella Foenum graecum*) as in *Lysimachia Foenum-graecum* Hance. It is manifestly allied to Hance's species, which extends from Kwangtung and Kwangsi to Szechuan and Yunnan, differing in its remarkable large leaves and its much larger flowers. It is scarcely more closely allied to the Indian *L. evalvis* Wall. than it is to Hance's species.

STYRACACEAE

Huodendron biaristatum (W. W. Sm.) Rehd. Jour. Arnold Arb. **16**: 344, t. 152. 1935.

Styrax biaristatus W. W. Sm. Notes Bot. Gard. Edinb. **12**: 233. 1920; C. E. C. Fischer, Kew Bull. **1933**: 365.

INDO-CHINA, Tonkin, vicinity of Chapa, *Petelot 3803*, August, 1930, *4373*, September, 1931. Yunnan, Kweichow, Kwangsi in China, and also occurring in Burma; a variety in Kwangtung Province, China.

This recently described, strongly characterized genus is represented by two known species and one variety, the generic range being Burma, northern Indo-China, Yunnan, southeastern Tibet, Kweichow, Kwangsi, and Kwangtung.

SYMPLOCACEAE

Symplocos Guillauminii nom. nov.

Symplocos trisejala Guillaum. Bull. Soc. Bot. Fr. **79**: 176. 1932, Lecomte, Fl. Gén. Indo-Chine **3**: 1024. 1933, non Merr. 1917.

Indo-China.

OLEACEAE

Jasminum longisepalum Merr. Univ. Calif. Publ. Bot. **10**: 429, 1924.

Jasminum longisetum Gagnep. in Lecomte & Humbert, Fl. Gén. Indo-Chine **3**: 1056. 1933 (**syn. nov.**).

Gagnepain overlooked my description of 1924 based on *Petelot 773*,

973, from Cho-Ganh, Indo-China. *Jasminum longisetum* Gagnep. safely represents the same species.

Jasminum pentaneurum Hand.-Mazz. Anz. Akad. Wiss. Wien **59**: 109. 1922; Kobuski, Jour. Arnold Arb. **13**: 167. 1932.

INDO-CHINA, Tonkin, Phu Ho, *Petelot 1514*, October, 1923. Kwangtung, Kwangsi.

This specimen is clearly referable to Handel-Mazzetti's species. It is suspected that this form was included by Gagnepain in his concept of *Jasminum subtriplinerve* Blume (Lecomte, Fl. Gén. Indo-Chine **3**: 1049. 1933).

Jasminum Duclouxii (Lév.) Rehd. Jour. Arnold Arb. **15**: 307. 1934.

Melodinus Duclouxii Lév. Repert. Sp. Nov. **2**: 114. 1906.

Jasminum Schneideri Lév. Monde Pl. II. **18**: 31. 1916.

Jasminum dunicolum W. W. Sm. Notes Bot. Gard. Edinburgh **12**: 207. 1920; Kobuski, Jour. Arnold Arb. **13**: 166. 1932.

INDO-CHINA, Tonkin, Chapa, *Petelot 5939*, April, 1936, in open forests, alt. 1500 m. Yunnan. Léveillé erroneously credited *Ducloux 112*, on which his two binomials were based, to Kweichow.

Osmanthus Matsumuranus Hayata, Jour. Coll. Sci. Univ. Tokyo **30**(1): 192. 1911.

INDO-CHINA, Tonkin, Bac Giang Province, between Kep and Pho Vi, *Petelot 5954*, June 5, 1936, in open forests. Kwangsi, Kwangtung, Hainan, and Formosa.

GENTIANACEAE

Crawfurdia speciosa Wall. Tent. Fl. Nepal. 64. *t.* 48. 1826; C. B. Clarke in Hook. f. Fl. Brit. Ind. **4**: 106. 1883.

INDO-CHINA, Tonkin, Massif du Tam Dao, alt. 1000 m., *Petelot 4584*, December, 1930. Central and eastern Himalayan regions; new to Indo-China.

Crawfurdia fasciculata Wall. Tent. Fl. Nepal. 63. *t.* 47. 1826; C. B. Clarke in Hook. f. Fl. Brit. Ind. **4**: 107. 1883.

INDO-CHINA, Tonkin, Chapa, *Petelot 3159*, July, 1927, alt. 1500 m., Khasia Mountains and southeastern China. *Petelot 4585*, from the Massif du Tam Dao, a specimen in fruit, may be referable here.

Canscora Petelotii sp. nov.

Herba parva, annua, erecta, circiter 9 cm. alta, simplex vel parce ramosa, caulibus teretibus, glabris vel parce ciliatis, haud 1 mm. diametro; foliis inferioribus ovatis vel oblongo-ovatis, acutis, usque

ad 1.7 cm. longis et 1.2 cm. latis, parce ciliatis, nervis utrinque circiter 3, petiolo usque ad 2 mm. longo; bracteis bracteolisque foliaceis, perfoliatis, orbicularibus, reticulatis, glabris, 1 ad 1.5 cm. diametro; floribus albidis, solitariis, 1.4 cm. longis, 5-meris, calyce cylindrico, 6 mm. longo, dentibus acutis; corollae tubo calycem aequante, lobis 5, oblongis, obovatis, rotundatis, 7 mm. longis, 4–4.5 mm. latis, tenuiter 8-nerviis; staminibus 5, 3 brevioribus corollae tubum subaequantibus, 2 longioribus distincte (3–4 mm.) exsertis.

INDO-CHINA, Laos, Province of Cammon, Kouan Pha Vang, *A. Petelot* 4327, November, 1930. A rare plant growing on calcareous rocks at an altitude of about 140 m.

This species superficially suggests a dwarfed form of *Canscora perforata* Lam. and *C. Wallichii* C. B. Clarke, of India, differing markedly in its small size, terete, not 4-winged stems, and its 5-merous flowers. It is not closely allied to any of the other 5 species of the genus recorded from Indo-China. Representatives of the genus normally have 4-merous flowers, but this species is anomalous within the genus, as is the totally different *C. pentanthera* C. B. Clarke of the Malay Peninsula, in its 5-merous flowers.

BORAGINACEAE

Trigonotis macrophylla Vaniot var. **verrucosa** Johnston, Jour. Arnold Arb. 18: 4. 1937.

INDO-CHINA, Tonkin, Chapa, *Petelot* 4192, July, 1930, along roads in forests. This variety also in Kwangsi Province, China, the species and another variety in Kweichow Province, China. The first representative of the genus to be recorded from Indo-China.

VERBENACEAE

Clerodendron Squiresii sp. nov.

Frutex scandens 5–7 m. altus, partibus junioribus inflorescentiisque plusminusve pubescentibus, ramis ramulisque pubescentibus, teretibus, ultimis 2 mm. diametro; foliis ovatis, chartaceis vel subcoriaceis, olivaceis, nitidis, integris, 4–8 cm. longis, 3–4.5 cm. latis, basi late subtruncato-rotundatis vel leviter cordatis, apice acutis vel breviter acuminatis, utrinque ad costam nervosque obscure pubescentibus demum glabrescentibus, nervis primariis utrinque 3 vel 4, subtus manifestis; petiolo 5–10 mm. longo, leviter pubescente; inflorescentiis terminalibus, multifloris, 10–15 cm. longis, 15–20 cm. latis, subcorymbosis vel ramis primariis plus minusve distantibus, patulis, inferioribus oppositis, ad 10 cm. longis, superioribus brevioribus, bracteis bracteolisque linearibus,

pubescentibus, bracteis usque ad 3 mm. longis, bracteolis minoribus; calyce breviter cinereo-pubescente, 3 mm. longo, basi acuto, dentibus parvis, vix 0.5 mm. longis; corollae tubo gracili, circiter 8 mm. longo, albido, glabro, lobis oblongis vel oblongo-obovatis, rotundatis, 2 mm. longis; filamentis longe (ad 13 mm.) exsertis, glabris; fructibus cylindricis, oblongo-ellipsoideis, 5–7 mm. longis, 3 mm. diametro, rotundatis, adpresse hirsutis atque breviter pubescentibus, tarde dehiscentibus, in pyrenas 4 elongatas angustas dissilientibus.

INDO-CHINA, southern Annam, Dalat, *R. W. Squires* 858, March 15, 1932, on sandy river banks, flowers white, fragrant.

In all respects, except in its ultimately dehiscent fruits, this is a typical *Clerodendron*, apparently belonging in the group with *Clerodendron Godefroyi* O. Ktze. The fruiting calyces are very slightly enlarged, about 3 mm. in diameter, and about as long as wide. The fully ripe fruits split longitudinally into two equal parts, which in turn divide into two narrow single-seeded pyrenes, the dehiscence paralleling that of the fully mature fruits of the common *Clerodendron inerme* Gaertn.

Clerodendron Petasites (Lour.) Moore, *Jour. Bot.* **63**: 285. 1925; Merr. *Trans. Am. Philos. Soc.* **II**, **24**(2): 338. 1935.

Volkameria Petasites Lour. *Fl. Cochinch.* 388. 1790.

Clerodendron subpandurifolium O. Ktze. *Rev. Gen. Pl.* 506. 1891.

Clerodendron Robinsonii Dop, *Not. Syst.* **4**: 9. 1920, Lecomte, *Fl. Gén. Indo-Chine* **4**: 872. f. 89, 8, f. 90, 1–2. 1935 (*syn. nov.*).

This fairly well characterized species, known only from Indo-China, was originally described by Loureiro in 1790, Loureiro's type, probably from the vicinity of Hue, being preserved in the herbarium of the British Museum. Moore examined this in 1925 and found it to be identical with *Clerodendron subpandurifolium* O. Ktze. (1891), type from Tourane. Dop overlooked both species in 1935, having re-described the same form in 1920 as *Clerodendron Robinsonii* Dop, type *Robinson 1290* from Nha Trang. Loureiro's specific name should be retained.

Premna interrupta Wall. *List no.* 1778. 1929, *nomen nudum*; Schauer *In DC. Prodr.* **11**: 633. 1847; P'ei, *Mem. Sci. Soc. China* **1**(3): 88, 1932.

INDO-CHINA, Tonkin, Chapa, alt. 1550 m., *Petelot* 4786, 5447, July, 1933, and April, 1935. India to Tibet and Yunnan.

LABIATAE

Elsholtzia Patrini (Lepech.) Garcke, *Fl. Halle* **2**: 213. 1856; Britt.

& Brown, Ill. Fl. North. U. S. **3**: 124. *f.* 3188. 1898; Hand.-Mazz. Symb. Sin. **7**: 935. 1936.

Mentha Patrini Lepech. Nova Acta Acad. Petrop. **1**: 336. *t.* 8. 1783.

Elsholtzia cristata Willd. in Roem. & Usteri Mag. Bot. **11**: 5. 1790.

INDO-CHINA, near Hanoi, *Petelot 1370*, April, 1924, planted. Widely distributed in Asia, introduced in Europe and in North America. It is very probable that this is the species considered by Loureiro to represent *Origanum syriacum* Linn.; Fl. Cochinch. 374. 1790.

SOLANACEAE

Solanum pittosporifolium Hemsl. Jour. Linn. Soc. Bot. **26**: 171. 1890.

INDO-CHINA, Tonkin, Chapa, *Petelot 4583*, August, 1930, alt. about 1500 m. Szechuan and probably in other parts of western China.

Lycianthes denticulata (Blume) Bitter var. **leiophylla** Bitter, Abh. Naturwiss. Ver. Bremen **24**: 475. 1920.

INDO-CHINA, Tonkin, Mount Bani, *Petelot 5459*, August, 1931, alt. about 500 m. The variety in Tenasserim, the species in Java and Sumatra.

SCROPHULARIACEAE

Wightia elliptica sp. nov.

Arbor circiter 8 m. alta, ramis ramulisque incrassatis, purpureo-brunneis, lenticellatis, in sicco plus minusve rugosis, ultimis circiter 5 mm. diametro, glabris; foliis crasse coriaceis, ellipticis, 10–20 cm. longis, 6–11 cm. latis, apice obtusis vel breviter obtuseque acuminatis, basi latissime acutis vel rotundatis, supra pallidis vel brunneis, glabris, subtus conspersissime breviter substellato-pubescentibus demum glabrescentibus, in axillis primariis glandulis paucis (circiter 5) ad 20 planis vel impressis plerumque vix 0.5 mm. diametro instructis; nervis primariis utrinque 4–6, supra impressis, subtus paullo elevatis, curvato-adscendentibus, obscure arcuato-anastomosantibus, reticulis distinctis; petiolo glabro vel parcissime pubescente, 1.5–4 cm. longo; thyrsis pedunculatis, ad 15 cm. longis, in ramis aphyllis erectis, ad 70 cm. longis, racemose dispositis; floribus numerosis, plus minusve confertis, circiter 3.5 cm. longis, pallide roseo-purpureis, pedunculo glabrescente, in partibus floriferis dense breviter ferrugineo-puberula, pedicellis usque ad 5 mm. longis; calyce 8–9 mm. longo, 6–7 mm. diametro, extus dense substellato-puberulo, intus glabro, 3-lobato, lobis ovatis, circiter 3 mm. longis, binis acutis, altero rotundato, corollae tubo circiter 1.6 cm. longo, extus dense ferrugineo-puberulo, intus glabro, leviter curvato,

lobis infimis oblong-ovatis, rotundatis, 8 mm. longis, lateralibus circiter 10 mm. longis, supremis bifidis, lobulis imbricatis, ovatis, obtusis, circiter 7 mm. longis; filamentis glabris, antheris oblongo-ellipsoideis, 4 mm. longis; ovario glabro.

INDO-CHINA, Tonkin, Chapa, *A. Petelot 4198*, October, 1931, flowers mauve on leafless erect or ascending branches attaining a length of 70 cm.

When I first studied this species it was referred to ***Wightia speciosissima*** (D. Don) comb. nov. (*Gmelina speciosissima* D. Don, Prodr. Fl. Nepal. 104. 1825; *Wightia gigantea* Wall. Pl. As. Rar. 1: 71. t. 81. 1830), but because of certain discrepancies observed, I then attempted to place it with one of the few other described species of the genus. It is clearly not the same as the Indian species mentioned above, nor can it be referred to *Wightia Aplinii* Craib of Burma. Its closest ally seems to be *Wightia Lacei* Craib of Burma, from which it differs in its much larger leaves, glabrous petioles, somewhat different flowers, and apparently also in its very numerous axillary glands, varying from 4 or 5 to about 20 in each primary axil on the lower surface of the leaf; this character is not mentioned by Craib for either of the two species he described from Burma. The genus is new to Indo-China.

Artanema longifolium (Linn.) Merr. Philip. Jour. Sci. 19: 380. 1921.

Columnea longifolia Linn. Mant. 1: 90. 1767.

Achimenes sesamoides Vahl, Symb. 2: 71. 1791.

Artanema sesamoides Benth. Scroph. Ind. 39. 1836; Bonati in Lecomte, Fl. Gén. Indo-Chine 4: 384. 1927.

INDO-CHINA, southern Annam, Dalat, *Squires 926*, March 17, 1932, on sandy river banks. India to Indo-China, Malaysia, and Luzon. Other synonyms are *Sesamum javanicum* Burm. f. (1768), and *Artanema longiflorum* Wettst. (1891).

Paulownia Fargesii Franchet, Bull. Mus. Hist. Nat. Paris 2: 280. 1896; Rehd. in Sargent, Pl. Wils. 1: 575. 1913.

INDO-CHINA, Tonkin, Chapa, *Petelot 5861*, April, 1936, alt. about 1600 m., in open forests. Szechuan, Yunnan.

RUBIACEAE

Ixora hainanensis Merr. Lingnan Sci. Jour. 6: 287. 331. 1930.

INDO-CHINA, southern Annam, near Dalat, *Squires 910*, June 10, 1932. A shrub with white flowers in open rocky forests. Kwangtung Province, China, and Hainan.

In *Ixora Henryi* Lév. Repert. Sp. Nov. 13: 178. 1914, type *Cavalerie*

3496, Kweichow Province, China, the leaves are slenderly and sharply acuminate and the calyx-lobes are much shorter than the calyx tubes. I have not seen the Indo-Chinese material referred by Pitard to *Ixora Henryi* Lév., but the specimen above cited, which may or may not represent *Ixora Henryi* as interpreted by Pitard in Lecomte, Fl. Gén. Indo-China 3: 324. 1924, I believe to be safely conspecific with *Ixora hainanensis* Merr.; *I. Henryi* Lév., as originally described from Kweichow material, is distinctly different from *Ixora hainanensis* Merr.

***Ixora Pierrei* nom. nov.**

Ixora gracilipes Pierre ex Pitard in Lecomte, Fl. Gen. Indo-Chine 3: 314. 1924, non Merr. 1915.

A new name is needed for this Indo-China species the actual type being *Pierre 3185*.

***Mussaenda Squiresii* sp. nov.**

Frutex 1–2 m. altus, ramis teretibus, elongatis, glabris, ramulis consperse hirsutis, ultimis circiter 2 mm. diametro; foliis chartaceis, oblongis vel oblongo-ovatis, 7–10 cm. longis, 2.5–3.5 cm. latis, supra olivaceis, subtus viridibus, graciliter acute acuminatis, basi acutis, utrinque consperse hirsutis, nervis primariis utrinque 7–9, gracilibus, manifestis; petiolo 5–7 mm. longo, ciliato-hirsuto; stipulis lanceolatis, acuminatis, ciliato-hirsutis, circiter 8 mm. longis; cymis terminalibus 6–8 cm. latis, multifloris, foliosis, ciliato-hirsutis, plerumque e basi 3-ramosis, ramis vel pedunculis 2–4 cm. longis; floribus aurantiacis, in ramulis ultimis plusminusve confertis; floribus circiter 2.5 cm. longis, calycis tubo ciliato-hirsuto, 2 mm. longo, lobis normalibus lanceolatis, acuminatis, ciliato-hirsutis, quam tubo duplo longioribus, lobo petaloideo lamina ovato- vel oblongo-lanceolata, 7–8 cm. longa et 1.5–3 cm. lata, in stipitem 2–3 cm. longum attenuata; corollae tubo gracili, consperse ciliato-hirsuto, 2 cm. longo, sursum leviter ampliato, 1–1.5 cm. diametro, lobis 5, oblongo-ovatis, acuminatis, 5 mm. longis, bracteolis linearibus, 5–8 mm. longis.

INDO-CHINA, southern Annam, near Dalat, *R. W. Squires 827*, April 21, 1932, a shrub, in rocky open field, flowers bright orange.

A species apparently allied to *Mussaenda saigonensis* Pierre among those where the calyx-lobes are much longer than the calyx-tubes, but with very different petaloid sepals.

***Nertera sinensis* Hemsl. Jour. Linn. Soc. Bot. 23: 391. t. 10. 1888.**

INDO-CHINA, Tonkin, Chapa, *Petelot 3127*, July, 1927, alt. about 1500 m. Szechuan to Kweichow and Kwangtung. The genus is new to Indo-China.

Hymenopogon parasiticus Wall. in Roxb. Fl. Ind. **2**: 157. 1824;
Pitard in Lecomte, Fl. Gén. Indo-Chine **3**: 57. f. 4, 18-21, 6, 2-3.
1922.

INDO-CHINA, Tonkin, near Chapa, *Petelot* 3138, 3254, September, 1927, and July, 1928, alt. 1500 to 1600 m. India to Yunnan and Siam.

This was admitted by Pitard on the Siamese record; he had no material from French Indo-China.

Prismatomeris Labordei (Lév.) Merr. ex Rehder, Jour. Arnold Arb. **18**: 249. 1937.

Canthium Labordei Lév. Repert. Sp. Nov. **13**: 178. 1914.

Lasianthus Labordei Rehd. Jour. Arnold Arb. **13**: 340. 1932, **16**: 323. 1935.

Prismatomeris linearis Hutch. in Sargent, Pl. Wils. **3**: 414. 1916. (syn. nov.).

INDO-CHINA, Tonkin, Chapa, route from Lo Qui Ho to Ta Phinh, and Massif du Fan Tri Pan, *Petelot* 3595, 4646, September, 1929, and February, 1932. Kweichow, Kwangsi, Yunnan.

The flowers seem to be slightly larger than in the Chinese form, but none of the latter material that I have seen has fully mature ones. Clearly *Prismatomeris linearis* Hutch., type *Henry 9040*, cannot be distinguished from Lévillé's species.

CUCURBITACEAE

Gynostemma laxum (Wall.) Cogn. in DC. Monog. Phan. **3**: 914. 1881.

Zanonia laxa Wall. List no. 3727. 1830, *nomen nudum*, Pl. As. Rar. **2**: 29. 1831.

Gynostemma crenulatum Ridl. Jour. Fed. Malay States Mus. **10**: 93. 1920.

INDO-CHINA, Tonkin, Mount Bani, *Petelot* 5682, May, 1935, alt. about 500 m. India to Burma, Siam, Sumatra, Java, Borneo, and Mindanao.

King (Jour. As. Soc. Bengal **67**(2): 41. 1898; Mater. Fl. Malay. Penin. **3**: 385) accepted Clarke's idea that a single species was represented by the 3-foliolate (*G. laxum* Cogn.) and the 5-foliolate (*G. pedatum* Bl. = *G. pentaphyllum* (Thunb.) Mak.) forms. Craib, however (Fl. Siam. Enum. **1**: 766. 1931), considers that Cogniaux was apparently justified in treating the plant with uniformly 3-foliolate leaves as specifically distinct from the 5-foliolate form. In any case the 3-foliolate form has apparently not previously been recorded from Indo-China. Craib placed *G. crenulatum* Ridl. as a synonym of *G. laxum* Cogn.

Gynostemma siamicum Craib, Kew Bull. 362. 1918, Fl. Siam. Enum. 1: 767, 1931.

INDO-CHINA, Tonkin, Hoa Binh Province, near Muong Thon, route from Hanoi to Hoa Binh, *Petelot 5385*, February, 1931, in open forests. Siam.

This agrees well with Craib's description and differs from *G. laxum* Cogn. in exactly the characters that he emphasizes.

Gymnopetalum quinquelobatum sp. nov.

Herba scandens, ramis glabris vel parcissime pubescentibus, laevibus, 1–1.5 mm. diametro, sulcatis; foliis ambitu ovatis, profunde anguste 5-lobatis, ad 10 cm. longis et 8 cm. latis, utrinque papillatis, scabris, basi profunde cordatis, lobis basalibus ad 3 cm. longis, deflexis, laterali-bus patulis, usque ad 4 cm. longis, terminalibus rectis, usque ad 7 cm. longis, omnibus circiter 1 cm. latis, distanter sinuato-denticulatis, plerumque breviter apiculatis vel basilaribus plus minusve obovatis et paullo latioribus; petiolo circiter 1 cm. longo, pubescente; floribus ♀ axillaribus, solitariis, pedunculo 1–2.5 cm. longo, calycis tubo plus minusve pubescente, lobis lanceolatis, acuminatis, 8–9 mm. longis, 2 mm. latis, corolla 2 cm. longa, lobis ovatis, acutis; inflorescentiis ♂ axillari-bus, solitariis, longe pedunculatis, ad 12 cm. longis, pedunculo 6–8 cm. longo, subglabro, partibus floriferis bracteisque pubescentibus, bracteis in sicco brunneis, elliptico-ovatis, 2–2.5 cm. longis, inferioribus 2- vel 3-lobatis, superioribus plerumque irregulariter grosse dentatis; fructi-bus 5–6 cm. longis, 1.5 cm. diametro, perspicue longitudinaliter 10-carinatis, longe acuminatis, leviter pubescentibus.

INDO-CHINA, southern Annam, near Dalat, *R. W. Squires 943*, March 18, 1932, on sandy river banks, flowers white.

A species allied to *Gymnopetalum cochinchinense* (Lour.) Kurz, differentiated, however, by its deeply and narrowly 5-lobed leaves.

COMPOSITAE

Blumeopsis falcata (D. Don) comb. nov.

Erigeron falcatum D. Don, Prodr. Fl. Nepal. 172. 1825.

Conyza fasciculata Wall. List no. 3017. 1831, *nomen nudum*.

Laggera flava Benth. in C. B. Clarke, Comp. Ind. 90. 1876.

Blumeopsis flava Gagnep. Bull. Mus. Hist. Nat. Paris 26: 76. 1920; Lecomte, Fl. Gén. Indo-Chine 3: 567. f. 61, 1–6. 1924.

INDO-CHINA, Laos, Province of Tranninh, plaine des Jarres, *Petelot 4612*. India to Yunnan (*Henry 11595A*), Burma, Siam, Indo-China, and Hainan. The species has also been recorded from Penang, but this was probably due to an erroneously labelled specimen.

ARNOLD ARBORETUM,
HARVARD UNIVERSITY.